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Message



An officer with a right mindset is an officer that a nation aspires for. A right mindset doesn't necessarily comprise unlimited jargon of knowledge rather a right amount of knowledge and its appropriate execution. Especially, when it comes to UPSC and State PSCs preparation, the crux is not to accumulate the knowledge but its effective implementation and utilization in tackling any situation. The situation here can be anything from UPSC CSE Prelims to the major issues that need to be addressed. The journey is hard but it is worth.

Perfect 7 has been part of many UPSC and State PSCs aspirants in their journey of becoming well reputed officers serving nationally and internationally. The magazine itself had gone through constant ebb and flows of change and improvements. Now, that the magazine is in its monthly era, I hope it becomes your perfect preparation partner and guides you through this ever learning endeavor of Civil Services Preparation.

With Best wishes.

Vinay Singh
Founder
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PERFECT



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Indian Society & Art and Culture

The Continuing Struggle against Malnutrition: A National Developmental Emergency

Context:

Child malnutrition continues to be a major public health concern globally, affecting millions of children and leading to serious consequences such as illness, poor growth, and even death. According to the United Nations Children's Fund (UNICEF), nearly 8 million children under the age of five are at risk of dying from severe malnutrition—particularly wasting—in 15 countries experiencing the worst food insecurity. In these countries, around 40 million children are facing severe nutrition insecurity, and almost 21 million are severely food insecure.

- ❖ Malnutrition not only increases the risk of disease and death but also hinders a child's cognitive and physical development. It often starts a lifelong cycle of disadvantages, including poor quality of life, maternal malnutrition, and early marriages and pregnancies, which further increase the risk of malnutrition in the next generation.
- ❖ Despite decades of policy focus and large-scale government interventions, malnutrition remains one of the most persistent public health issues in India. Recent data presented in the Rajya Sabha offers a stark reminder of the challenges

ahead.

Understanding Key Indicators of Malnutrition

- ❖ The Poshan Tracker app records three core indicators among children under five:
 - » **Stunting (37%):** A condition where children are too short for their age, resulting from prolonged nutritional deficiency and recurring infections. It is a marker of chronic undernutrition.



- » **Underweight (16%):** Indicates a combination of chronic and acute undernutrition where children have low weight for their age.
- » **Wasting (5.46%):** A sign of acute undernutrition, where children are too thin for their height, often triggered by

sudden food shortages or illness.

- ❖ These figures show that significant proportions of India's children are at risk of physical and cognitive impairments and are unlikely to grow into healthy, productive adults.
- ❖ Beyond poor growth indicators, the Sample Registration System (SRS) 2022 further highlights the health risks faced by children in India.
 - » Neonatal mortality rate: 19 deaths per 1,000 live births
 - » Under-five mortality rate: 30 deaths per 1,000 live births (SRS 2022)

Root Causes of Malnutrition:

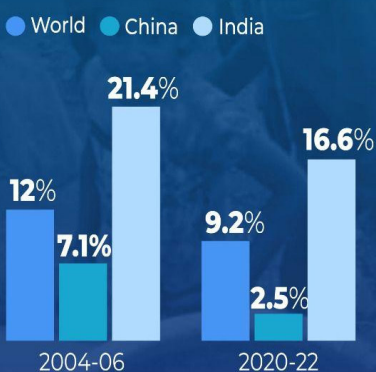
- ❖ **Poverty:** Low-income families often cannot afford nutritious food, healthcare, or clean water. This leads to poor dietary intake and untreated illnesses, both of which fuel chronic malnutrition.
- ❖ **Maternal Undernutrition:** Malnourished mothers are more likely to give birth to low birthweight babies. Poor maternal health during pregnancy affects the child's growth and continues the intergenerational cycle of malnutrition.
- ❖ **Poor WASH (Water, Sanitation, and Hygiene):** Lack of clean water and sanitation causes infections like diarrhoea, which reduce the body's ability to absorb nutrients, especially in young children.
- ❖ **Gender Inequality:** Girls and women often eat less and receive delayed healthcare. This not only weakens their health but also affects maternal and child nutrition outcomes in the long term.
- ❖ **Food Inflation:** Rising prices of pulses, fruits, and milk make protein-rich and

diverse diets unaffordable for the poor. Families often rely on cheap, low-nutrient staples, worsening dietary quality.

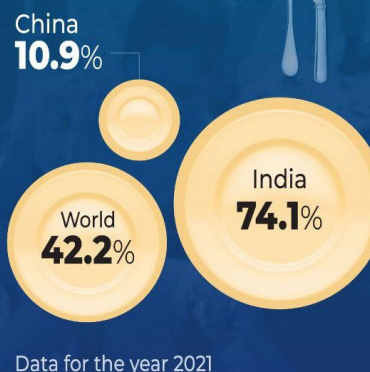
India's Nutrition Problem

3 in every 4 Indians can't afford healthy food

Prevalence of undernourishment in the total population



People unable to afford healthy food



Share of Indians unable to afford healthy food



State-Level Disparities in Nutrition:

- ❖ **States with the Highest Stunting Rates**
 - » Uttar Pradesh: 48.83%
 - » Jharkhand: 43.26%
 - » Bihar: 42.68%
 - » Madhya Pradesh: 42.09%
- ❖ These states rank poorly on poverty levels, maternal education, access to sanitation, and quality of public health services. These factors keep malnutrition high and recurring across generations.
- ❖ **States Showing Better Outcomes**
 - » Kerala and several North-Eastern states

have shown improved child nutrition indicators. Their success can be attributed to:

- » Stronger public health delivery mechanisms
- » Higher female literacy and maternal awareness
- » Greater access to nutrition schemes
- » Better sanitation and behavioural awareness

Key Hindrances in Tackling Malnutrition:

- ❖ **Top-Down Programme Design:** Most schemes follow a uniform national template that overlooks local food preferences, seasonal illnesses, and cultural norms—making them less effective on the ground.
- ❖ **Inter-Departmental Gaps:** Poor coordination between departments handling health, education, nutrition, and sanitation leads to fragmented service delivery and diluted impact.
- ❖ **Underutilisation of Technology:** Tools like the Poshan Tracker and ICDS-CAS have potential for real-time monitoring, but issues like poor digital literacy, infrastructure gaps, and low data entry capacity hinder their usage.
- ❖ **Inadequate Monitoring and Accountability**
 - » No regular third-party audits
 - » Limited real-time feedback mechanisms
 - » Lack of incentives or performance-based accountability for frontline workers

Government Interventions:

- ❖ **POSHAN Abhiyaan (National Nutrition Mission):** Launched in 2018, this flagship mission seeks to improve nutritional outcomes for children (0–6 years), adolescent girls, pregnant and lactating women.

Major pillars:

- » **Access to Quality Services**
 - Delivered via schemes like ICDS, NHM, and PMMVY
 - Focus on the first 1,000 days of life
- » **Cross-Sectoral Convergence**
 - Synergises efforts under Swachh Bharat, Jal Jeevan Mission, and others

- » **Technology-Based Monitoring**
 - Use of mobile apps and real-time dashboards for decision-making
- » **Jan Andolan (Mass Movement):** Community participation for behaviour change on:
 - Breastfeeding
 - Child feeding
 - Anaemia control
- » **Policy Coordination**
 - A National Council on Nutrition chaired by the NITI Aayog Vice Chairperson reviews implementation quarterly
- » **Persistent Challenges:** Anganwadi Centres (AWCs) suffer from:
 - Inadequate infrastructure
 - Shortage of trained staff
 - Resource and delivery gaps
- » In response to persistent gaps, the government approved Mission Saksham Anganwadi and Poshan 2.0, a merger of previous nutrition-related schemes with a mission-mode focus on holistic well-being.
- » **Digital hurdles:**
 - Limited smartphone access and internet connectivity in rural areas
 - Low digital literacy among field workers
 - Data entry issues leading to incomplete records
- ❖ **Integrated Child Development Services (ICDS)**
 - » **A long-standing scheme providing:**
 - » Supplementary nutrition
 - » Health check-ups and immunisations
 - » Early childhood care and non-formal preschool education
 - » **Despite its wide reach, ICDS faces challenges like:**
 - Fragmented delivery in high-burden states
 - Underfunding in critical areas
 - Inconsistent quality across centres
- ❖ **PM POSHAN (Earlier Mid-Day Meal Scheme)**
 - » Now restructured as PM POSHAN, this

programme provides:

- Hot cooked meals to school-going children
- Nutritional support aimed at boosting school attendance and health

❖ **However, the scheme:**

- Does not cover children below six years of age
- Was severely disrupted during the COVID-19 pandemic

The Crisis of Adult Undernutrition:

- ❖ While the focus largely remains on child health, adult undernutrition, especially among the economically weakest, is an equally pressing issue.
- ❖ As per the 2023 Household Consumption Expenditure Survey:
 - » The bottom 5% in rural India consume just 1,688 kilocalories/day
 - » Their urban counterparts consume only slightly more: 1,696 kilocalories/day
- ❖ This is significantly below the recommended intake of 2,500 kilocalories/day for a healthy adult. Chronic undernutrition among adults results in:
 - » Reduced productivity
 - » Weakened immunity and greater illness burden
 - » Poor maternal nutrition, leading to undernourished newborns and perpetuating the cycle of malnutrition

Way Forward:

- ❖ **District-Specific Targeting**
 - » Prioritise high-burden areas like Yadgir, Kalaburagi, and Purvanchal
 - » Develop and mandate District Nutrition Profiles and Action Plans
- ❖ **Anganwadi Reform**
 - » Upgrade to Saksham Anganwadis with:
 - Robust infrastructure
 - Regular staff training
 - Digital tools for monitoring
- ❖ **Expand Coverage**
 - » Extend PM POSHAN and ICDS to:
 - Children under 3 years
 - Pregnant and lactating women

- » Consider cash transfers or nutrition kits for high-risk families

❖ **Invest in Women's Health and Education**

- » Promote nutrition for adolescent girls
- » Encourage delayed pregnancies and maternal health check-ups
- » Ensure universal access to reproductive and maternal care

❖ **Behavioural Change Campaigns**

- » Mobilise ASHA workers, SHGs, and local influencers
- » Focus on feeding practices, anaemia prevention, and sanitation

❖ **Ensure Food Security**

- » Strengthen PDS to distribute nutrient-dense grains like millets
- » Promote biofortified crops and kitchen gardens for household nutrition

❖ **Integrate Services**

- » Link nutrition, health, WASH, and education interventions under a unified delivery model

Conclusion:

India's malnutrition crisis is not just about hunger—it reflects deep-rooted issues of poverty, inequality, infrastructure gaps, and governance challenges. The solution lies not in fragmented schemes but in strong convergence, localised action plans, and community-driven accountability. Improving nutrition, especially in the critical window of the first 1,000 days, must be at the heart of India's development agenda. With global commitments like the UN's Sustainable Development Goal 2 (Zero Hunger), the time to act is now—and action must be urgent, targeted, and sustained.

Short Issues

Aadi Thiruvathirai Festival: the Legacy of Rajendra Chola I

Context:

The Ministry of Culture will celebrate the birth anniversary of the great Chola emperor Rajendra Chola I with the Aadi Thiruvathirai Festival. The event will be held from 23rd to 27th July 2025 at Gangaikonda Cholapuram, Tamil Nadu.

- This special celebration commemorates 1,000 years of Rajendra Chola's legendary maritime expedition to South East Asia and the commencement of the construction of the iconic Gangaikonda Cholapuram temple, a magnificent example of Chola architecture.

About Rajendra Chola I:

- Rajendra Chola I, who ruled from 1014 to 1044 CE, was a remarkable king who expanded the Chola Empire's influence far beyond its borders.
- He was the son of Rajaraja I, one of the most powerful Chola rulers, and built upon his father's legacy by conquering the Ganga valley and earning the title Gangaikonda Cholan (The Chola who conquered the Ganges).
- To commemorate this victory, he founded a new capital named Gangaikonda Cholapuram and built a temple of the same name.

Maritime Expeditions and Legacy:

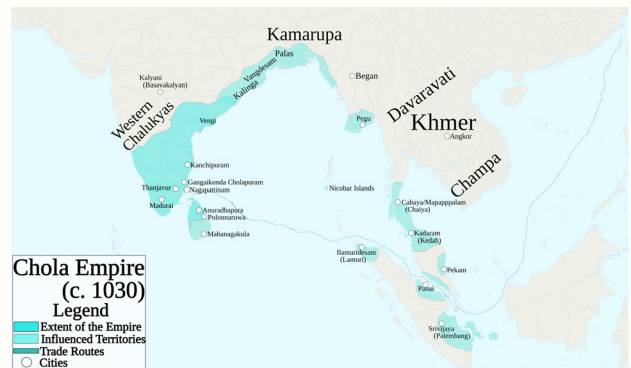
- Rajendra Chola I's maritime expeditions against Sri Lanka and the powerful Srivijaya Empire in Southeast Asia are a testament to his naval prowess and strategic vision.
- The Srivijaya Empire was a dominant maritime power in Southeast Asia by the 7th century, and Rajendra Chola I's victory over it marked a significant milestone in Indian history.
- The name Sri Vijaya Puram for the A&N Islands' capital is inspired by this victory.

About The Chola Empire:

- The Chola Empire, which rose to power in

the 9th century under Vijayalaya Chola, was a remarkable administrative and cultural entity.

- The Cholas were known for their efficient governance, taxation system, and local administration.
- The Uttaramerur inscriptions, which detail the Chola administrative system and elections, are a testament to their sophisticated governance.



Cultural Achievements:

- The Chola Empire was also known for its cultural achievements, particularly in the field of architecture and art.
- The Great Living Chola Temples, including Gangaikonda Cholapuram, Airavatesvara, and Brihadeeswara, are UNESCO World Heritage Sites and showcase the empire's architectural prowess.
- The Cholas were also known for their exquisite bronze sculptures, especially the iconic Nataraja.

Conclusion:

The celebration of 1,000 years of Rajendra Chola's legendary maritime expedition is a fitting tribute to the king's achievements and the rich cultural legacy of the Chola Empire. The Aadi Thiruvathirai Festival is a reminder of the empire's administrative, cultural, and naval achievements, and its impact on Indian history. As we commemorate this milestone, we are reminded of the importance of preserving our cultural heritage and promoting a deeper understanding of our history.

Untouchability Cases in Indian Courts

Context:

A recent government report has highlighted the concerning state of untouchability cases in India, with a pendency rate of over 97% in courts and nearly all disposed cases resulting in acquittals. The Protection of Civil Rights Act (PCR Act), 1955, aims to define and penalize various manifestations of untouchability, but the data suggests that the law is not being effectively implemented.

Untouchability in India:

- Untouchability is a discriminatory practice affecting Scheduled Castes (Dalits) and schedule tribes. It involves exclusion from public life, resources, and social services.
- Despite the constitutional abolition of untouchability under Article 17 and the Protection of Civil Rights Act, 1955, it persists in subtle and overt forms.

Key Findings:

- **Decline in registered cases:** The number of cases registered under the PCR Act has declined, with only 13 cases reported in 2022, down from 24 in 2021 and 25 in 2020.
- **High pendency rate:** The pendency rate of cases in courts remains alarmingly high at over 97%, with 1,242 cases pending trial under the Act.
- **Acquittals dominate disposed cases:** Of the 31 cases disposed of by courts in 2022, only one resulted in a conviction, while the remaining 30 ended in acquittals. This trend is consistent with previous years, where all 37 PCR Act cases disposed of between 2019 and 2021 also ended in acquittals.

Comparison with Other Laws:

- **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act:** In contrast to the PCR Act, the number of cases registered under the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989, has risen steadily, with 62,501 cases reported in 2022.

Implementation Challenges:

- **Lack of data:** Several states, including Bihar, Punjab, Uttar Pradesh, and Jharkhand, did not provide data regarding inter-caste marriage incentives, while some states like Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, and Lakshadweep submitted "NIL" information.
- **Inconsistent implementation:** The report highlights the inconsistent implementation of the PCR Act across states, with some states not providing inputs despite repeated reminders.
- **Others factors:**
 - » Weak investigation and prosecution
 - » Lack of evidence or hostile witnesses
 - » Societal and systemic bias
 - » Overlap with the SC/ST (Prevention of Atrocities) Act, which has become the preferred legal framework for serious caste-based discrimination cases since its enactment in 1989

Conclusion:

The high pendency rate and acquittal-dominated disposed cases under the PCR Act raise serious concerns about the effectiveness of the law in addressing untouchability. The government must take concrete steps to improve the implementation of the Act, including increasing awareness, providing training to law enforcement agencies, and ensuring that cases are investigated and prosecuted effectively. Additionally, the government should work to address the inconsistencies in data collection and implementation across states.

Global Loneliness: A Growing Public Health Challenge

Context:

A recent report by the World Health Organization (WHO) titled From loneliness to social connection: charting a path to healthier societies highlights the scale of the problem between 2014 and 2023. The report found that one in six people globally experienced loneliness

during this period.

- The findings show that loneliness does not only affect emotional well-being but also has severe consequences for physical health and social stability. Particularly worrying are the high rates of loneliness among young people and those living in low-income countries.

Key Highlights:

- **Most Affected Groups:** The report identified two groups especially vulnerable to loneliness:
 - » Young people aged 13–29 reported the highest levels of loneliness globally, with about 17–21% saying they often felt lonely. Teenagers were the most affected within this age group.
 - » People in low-income countries experienced loneliness at higher rates (24%) compared to those in wealthier countries (11%).
- **Health Impact:** Persistent loneliness was linked to an estimated 871,000 deaths annually between 2014 and 2019. Loneliness increases the risk of heart disease, stroke, depression, and anxiety. It can also result in poor outcomes at school or work and weaken the social fabric of communities.

Difference Between Isolation and Loneliness:

- While related, social isolation and loneliness are not the same.
 - » Social isolation means having few or no social contacts, such as living alone.
 - » A person can be socially isolated without feeling lonely, or feel lonely despite having many interactions.
- Between 1990 and 2022, up to one in three people experienced social isolation, and one in four teenagers were affected between 2003 and 2018.

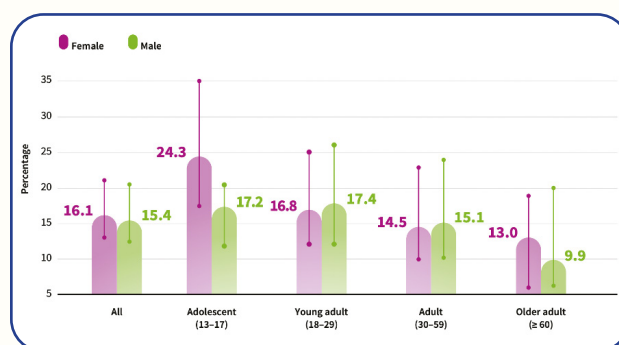
Vulnerable Populations:

- Groups more likely to experience loneliness and isolation include:
 - » People with disabilities
 - » Refugees and migrants
 - » LGBTIQ+ individuals

- » Indigenous and ethnic minority communities

Causes:

- The report identified several drivers of loneliness and isolation:
 - » Poor health
 - » Low education or income
 - » Personality factors
 - » Community and neighbourhood characteristics
 - » Life transitions like moving, job loss, breakups, or bereavement
 - » Digital technology, which can sometimes increase feelings of disconnection



Policy Measures and Solutions:

- Eight countries have adopted national policies on social connection—Denmark, Finland, Germany, Japan, the Netherlands, Sweden, the United Kingdom, and the United States. These policies focus on:
 - » Public awareness campaigns to reduce stigma
 - » Funding research
 - » Involving people with lived experience
 - » Building scientific evidence through cross-sectoral cooperation
- At the community level, strengthening “social infrastructure” is seen as essential. Well-designed public spaces, community gardens, sports facilities, and quiet areas like walking paths can help people connect. Psychological interventions such as cognitive behavioural therapy and social skills training have also shown effectiveness.
- However, the WHO notes that more research

is needed, especially in lower-income settings, to understand which approaches work best.

Conclusion:

The rise of loneliness and social isolation is a significant challenge for societies worldwide. It affects mental and physical health, economic productivity, and community well-being. The WHO has called on governments to integrate social connection into health policies, disease prevention strategies, and emergency planning. Recognising social connection as a core component of health is vital to building more resilient and inclusive societies.

India Achieves Decline in Under-Five Mortality and Neonatal Mortality

Context:

India has registered remarkable progress in reducing child mortality, surpassing global trends and demonstrating the impact of focused health interventions. According to the United Nations Inter-agency Group for Child Mortality Estimation (UN IGME) 2024 report, India's Under-Five Mortality Rate (U5MR) has declined by 78%, compared to a 61% decline globally. Similarly, the Neonatal Mortality Rate (NMR) has reduced by 70%, outperforming the global reduction of 54%.

Key Highlights:

- **Under-Five Mortality Rate Decline:** 78% in India vs. 61% globally.
- **Neonatal Mortality Rate Decline:** 70% in India vs. 54% globally.
- **Zero-Dose Children:** The share of children who have received no vaccines declined from 0.11% in 2023 to 0.06% in 2024, reflecting enhanced immunization outreach.

Role of Vaccination:

- The Union Health Ministry has emphasized that vaccination is one of the most powerful and cost-effective public health measures. India's Universal Immunization Programme

(UIP) provides free vaccines to 2.9 crore pregnant women and 2.6 crore infants annually. This has contributed significantly to reducing preventable child deaths.

▪ **The proactive approach includes:**

- » Expanding vaccine coverage to underserved and remote areas.
- » Strengthening cold chain infrastructure and service delivery.
- » Community mobilization to increase awareness and acceptance.

Major Initiatives Contributing to the Achievement:

- **Universal Immunization Programme (UIP):** Provides immunization against life-threatening diseases such as diphtheria, measles, tetanus, and polio.
- **Pradhan Mantri Surakshit Matritva Abhiyan:** Delivers assured, comprehensive antenatal care on a fixed day every month.
- **Janani Suraksha Yojana:** Offers cash assistance linked to institutional delivery and postnatal care to reduce maternal and infant mortality.
- **Mothers' Absolute Affection (MAA):** Focuses on promoting optimal breastfeeding practices, which are crucial for newborn survival and nutrition.

Recommendations for Further Reduction:

- **Prioritising Investments:** Focus resources on the most vulnerable and marginalized populations where mortality remains high.
- **Data Optimization:** Use detailed subnational data to target interventions more effectively and monitor progress in real time.
- **Age-Specific Interventions:** Develop interventions tailored to different age groups within the under-five cohort, such as newborn care and nutrition support for older infants.
- **Improving Data Availability:** Strengthen data systems to capture reliable information on births, deaths, and immunization coverage.

Way Forward:

- India's progress showcases the impact of sustained policy focus, community-

based interventions, and robust health infrastructure. However, further efforts are needed to:

- » Ensure no child is left behind in immunization drives.
- » Address social determinants such as nutrition, sanitation, and maternal education.
- » Integrate technological solutions for real-time monitoring and service delivery.
- Continued investment and innovation in child health programmes will be essential to achieve Sustainable Development Goal 3, which targets an end to preventable deaths of newborns and children under five by 2030. India's experience offers valuable lessons for other countries seeking to accelerate progress in child survival and improve population health outcomes.

Devadasi Community in Karnataka Demands Inclusive Re-survey

Context:

On June 23, 2025, the Karnataka State Human Rights Commission directed the state government to conduct a fresh and inclusive survey of all Devadasi women and submit the report by October 24, 2025. This decision follows rising demands from women and children across 15 districts who are part of the Devadasi community.

The need for Re-survey:

- The last major surveys of the Devadasi population in Karnataka were conducted in 1982 and 1993–94. These exercises left out large sections of the community due to several flaws:
 - » **Social stigma and fear:** Many women did not disclose their identities due to fear of discrimination or punishment.
 - » **Arbitrary age limits:** Only women of specific age brackets were counted, leaving out many younger and older individuals.

- » **Incomplete methods:** No door-to-door enumeration was done, leading to widespread underreporting.
- » **Exclusion of children:** The children of Devadasis were largely ignored in earlier surveys.

Historical Evolution of the Devadasi System:

- **Early origin:** The system traces back to the 8th century, with early records showing land, cattle, and symbolic items being dedicated to temple deities along with young girls.
- **Temple service:** These women, known as Devadasis or “dancing girls,” were dedicated to temples and trained in classical dance and music. They performed in festivals, rituals, and ceremonies.
- **Royal patronage:** The system thrived under various dynasties, especially in regions like Mysore and Thanjavur, with Devadasis receiving land, salaries, and social recognition.
- **Structured roles:** Duties included singing, dancing, carrying lamps during processions, and performing rituals. Training was formal and rigorous, with some even receiving instruction from master artists.

Social Status of Devadasis:

- **Independent social identity:** Devadasis formed a distinct social group with their own traditions, inheritance rules, and community councils.
- **Matrilineal traditions:** Property and social roles were passed through the female line.
- **Community recognition:** They were considered auspicious figures in weddings and ceremonies.
- **Economic empowerment:** Many owned land and enjoyed financial stability, especially during the height of the system in the 12th century.
- **Support networks:** Beyond royalty, they were supported by merchants, temple authorities, and patrons of the arts.

Why Did the System Decline?

- **Exploitation and abuse:** Over time, the

system shifted from religious service to exploitation, with women often forced into it.

- **Changing moral values:** With the rise of Western education and reformist thinking, the system was increasingly seen as unethical.
- **Anti-nautch campaigns:** Social reform movements sought to end the dedication of girls to temples and reframe dance as a secular art.
- **Administrative reforms:** Key policy decisions banned new appointments and removed the status of Devadasis in temples.
- **Legal measures:**
 - » Laws were passed to curb child marriage.
 - » Women's property rights were recognised.
 - » The Devadasi system was officially abolished in Karnataka by 1909—decades before similar laws in other regions.

Conclusion:

The demand for an inclusive re-survey by the Devadasi community in Karnataka is more than a request for data—it is a plea for dignity, visibility, and justice. For a society built on principles of equality and social justice, this is a chance to acknowledge a historically marginalised community and bring them into the fold of development.

India's First Tribal Genome Sequencing Project

Context:

Gujarat has become the first Indian state to launch a Tribal Genome Sequencing Project, aimed at improving healthcare for tribal communities. The project, announced by Tribal Development Minister Dr. Kuber Dindor, will sequence the genomes of 2,000 individuals from tribal communities across 17 districts in the state.

Objectives:

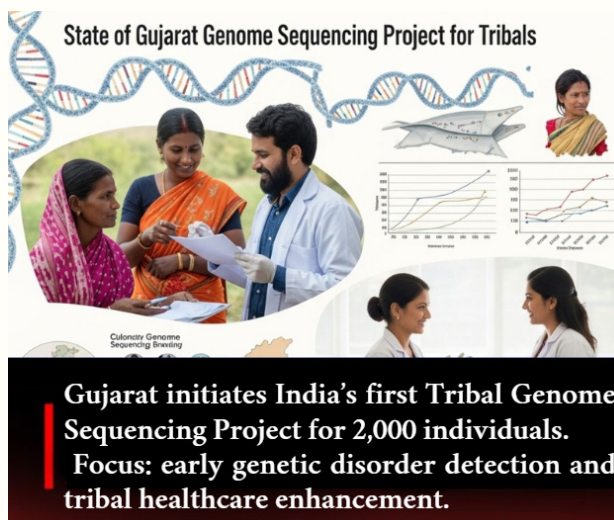
- Early detection and targeted treatment

of inherited diseases such as sickle cell anaemia, thalassaemia, and hereditary cancers.

- Creating a reference genome database for tribal communities.
- Supporting the development of personalised healthcare solutions and identifying natural immunity markers.

Implementation:

- **Gujarat Biotechnology Research Centre (GBRC):** The project will be implemented by the GBRC, as part of the 2025-26 state budget.
- **State-of-the-art Facilities:** The project will involve state-of-the-art facilities for sample collection and genetic analysis



Benefit tribal communities:

- Bridge the gap between traditional lifestyles and modern healthcare.
- Empower tribal populations through access to advanced medical technology.
- Improve long-term health outcomes using genomic data for precision and preventive care.

Concerns and Challenges:

- **Informed Consent:** There is a need to ensure that participants provide informed consent and understand the implications of genetic sequencing.
- **Data Protection:** The project raises

concerns about data protection and the potential misuse of genetic information.

- **Accessibility and Affordability:** The initiative's success will depend on ensuring that the benefits of genetic sequencing are accessible and affordable for tribal communities.
- **Cultural Sensitivity:** The project must be implemented in a culturally sensitive manner, taking into account the unique needs and perspectives of tribal communities.

About Genome sequencing:

- Genome sequencing is the process of determining the complete DNA sequence of an organism's genome, essentially reading the order of all the nucleotide bases (A, T, C, and G) within that organism's DNA.
 - » It involves identifying the order of these bases within the entire genome, encompassing all the genes and other DNA sequences.
 - » This information is crucial for understanding an organism's genetic makeup and can be used to study various aspects of biology, including disease development and evolution.
- Genome sequencing has several important applications, including:
 - » Disease diagnosis (e.g., cancer, rare genetic disorders)
 - » Personalized medicine, where treatments are tailored to an individual's genetic profile
 - » Drug development by identifying genetic targets
 - » Understanding disease mechanisms and progression
 - » Evolutionary biology to trace lineage and species relationships
 - » Agricultural improvement, such as enhancing crop resilience and animal health

Conclusion:

Tribal Genome Sequencing Project has the potential to improve healthcare outcomes for tribal populations in Gujarat. However,

its success will depend on addressing the concerns and challenges associated with genetic sequencing, ensuring informed consent, data protection, accessibility, and cultural sensitivity.

Sohrai Art

Context:

The indigenous mural art tradition of Sohrai from Jharkhand was recently celebrated at Kala Utsav 2025, held at Rashtrapati Bhavan. This ten-day artist residency programme aimed to honour India's diverse folk and tribal arts. The event marked a moment of national recognition for an art form that has long remained on the margins of mainstream attention.

What is Sohrai Art?

- Sohrai is a tribal mural painting tradition rooted in the agrarian and spiritual life of indigenous communities in eastern India. It is primarily practised by women from various tribal groups such as the Kurmi, Santal, Munda, Oraon, Agaria, and Ghatwal communities.
 - » **Origin of the Term:** The word 'Sohrai' comes from soro, meaning "to drive with a stick"—referring to cattle herding, which is closely associated with the festival of the same name.
 - » **Historical Roots:** The art form is believed to date back to the Meso-chalcolithic period (9000–5000 BCE). Notably, the Isko rock shelters in Barkagaon, Hazaribagh, feature prehistoric paintings that closely resemble present-day Sohrai designs.
 - » **Geographical Spread:** While centred in Jharkhand, Sohrai painting is also practised in parts of Bihar, Odisha, and West Bengal.

Key Features of Sohrai Paintings:

- **Themes and Symbolism:**
 - » Inspired by nature and rural life—forests, rivers, animals, and agricultural symbols.

- » Reflects spiritual beliefs and community rituals tied to seasonal changes.
- **Artistic Techniques:**
 - » Made using natural pigments—charcoal, clay, red and white soil.
 - » Brushes are crafted from chewed twigs or bamboo sticks.
 - » Painted directly onto the mud walls of homes during festivals, especially the Sohrai harvest festival.
- **Visual Style:**
 - » Known for geometric patterns, symmetrical forms, and vibrant colours.
 - » Motifs include peacocks, bulls, elephants, plants, and other natural elements.



About Kala Utsav 2025:

- The ten-day artist residency programme at Rashtrapati Bhavan brought together traditional artists from various parts of India. Sohrai artists from Hazaribagh district showcased their work, offering a window into their community's heritage and ecological wisdom.
- The event was organised in collaboration with the Indira Gandhi National Centre for the Arts (IGNCA) and its regional centre in Ranchi, which played a crucial role in selecting and coordinating the participating artists.

Significance of the Recognition:

- **Cultural Preservation:** It strengthens efforts to preserve indigenous traditions that are facing decline due to modernisation and lack of institutional support.

- **Artist Empowerment:** It validates the contributions of rural women artists who carry forward the tradition with limited visibility or financial support.
- **Geographical Indication (GI) Tag:** Sohrai art from Hazaribagh has received a GI tag, further securing its intellectual and cultural property rights.

Conclusion:

Showcasing tribal art on prestigious platforms such as Kala Utsav 2025 ensures that the voices of indigenous communities are heard and their heritage is valued. With continued support from institutions and public awareness, Sohrai art and similar traditions can thrive—enriching India's cultural landscape and empowering those who have kept these legacies alive for generations.

Paithani Sarees

Context:

Prime Minister Narendra Modi in the monthly radio programme 'Mann Ki Baat' praised the traditional craftsmanship of Paithani sarees, a historic and luxurious handloom art form from Maharashtra. The recognition highlights the livelihood it supports, especially among rural women in the Chhatrapati Sambhajinagar district (formerly Aurangabad).

What are Paithani Sarees?

- Paithani sarees are a centuries-old handloom tradition originating from Paithan, a town located on the banks of the Godavari River in Maharashtra. Known as the "Queen of Silks", these sarees are among the finest and most expensive varieties of traditional Indian attire.

Key Features of Paithani Sarees:

- Made of pure silk and real zari (gold or silver thread).
- Distinctive motifs like peacocks, lotus flowers, vines, and geometrical patterns.
- Renowned for the shot (dual-tone) effect achieved by weaving silk threads of two different colours.

- The pallu (decorative end) often features elaborate designs that set it apart.
- Woven entirely by hand, making each saree unique and time-intensive to produce.

Historical and Cultural Significance:

- Paithan was a prominent trading centre during the Satavahana dynasty.
- The sarees were historically considered a status symbol among the royal families and nobility of the Deccan.
- Today, Paithani sarees are a symbol of Maharashtrian identity and pride, frequently worn during weddings, festivals, and cultural ceremonies.
- Many families preserve them as heirlooms, passing them down through generations.



Handloom Livelihood and Women Empowerment:

- The production of Paithani sarees has become a major source of livelihood, especially for women weavers in Paithan and surrounding villages.
- **Government support has played a key role in:**
 - » Providing raw materials like silk yarn and zari.
 - » Facilitating training in weaving techniques.
 - » Promoting market linkages and participation in exhibitions.
- Creating a single Paithani saree requires immense skill and patience:

- » Depending on the complexity of the design, weaving can take several weeks to months.
- » Every element—right from dyeing the silk to preparing the loom and weaving the motifs—is done manually.
- » The no-jacquard, no-power-loom policy ensures that each piece remains truly handcrafted.

Conclusion:

The recognition of Paithani sarees is more than a celebration of aesthetic beauty—it is an acknowledgment of India's living heritage, women-led rural economies, and the resilience of traditional arts in a fast-modernizing world. Supporting such crafts not only preserves cultural memory but also creates inclusive development pathways for artisan communities. As more focus is placed on handloom revival and craft-based entrepreneurship, Paithani sarees stand as a shining example of how heritage can empower present and future generations.

Mental Health Crisis in Education

Context:

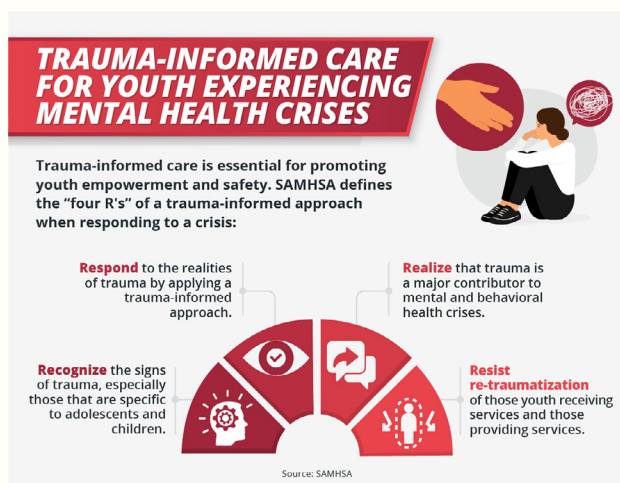
The Supreme Court of India has recently taken a significant step towards addressing the growing concern of student suicides and mental health disorders in the country's educational landscape. On July 25, 2025, a bench comprising Justice Vikram Nath and Justice Sandeep Mehta issued 15 binding guidelines to create safer and more empathetic environments in schools, colleges, and coaching centers across India.

Background:

- The Supreme Court's guidelines were issued in response to a petition regarding the unnatural death of a 17-year-old NEET aspirant in Visakhapatnam. The Court also ordered the transfer of the investigation to the Central Bureau of Investigation (CBI).
- » Highlighting the national emergency posed by student suicides, the Court

stressed the need for immediate and systemic reforms.

- » According to the National Crime Records Bureau (NCRB), India recorded over 13,000 student suicides in 2022, accounting for 7.6% of all suicides in the country.
- » The NCRB data also shows that student suicides have grown at an alarming annual rate of 4% over the past 20 years, surpassing population growth rates and overall suicide trends



Key Highlights of the Supreme Court Guidelines:

- **Uniform Mental Health Policy**
 - » All educational institutions must adopt a uniform mental health policy.
 - » The policy should draw from:
 - Ummeed Guidelines (2023)
 - Manodarpan Initiative (Ministry of Education)
 - » National Suicide Prevention Strategy
 - Must be updated annually and made publicly accessible.
- **Appointment of Mental Health Professionals**
 - » Institutions with 100+ students must appoint at least one trained counsellor, psychologist, or social worker.
 - » Institutions with fewer students must formally partner with external professionals.

- **Anti-Discrimination and Inclusivity**
 - » No academic segregation, public shaming, or unrealistic academic targets.
 - » Zero tolerance for discrimination based on caste, gender, disability, religion, etc.
 - » Confidential and accessible redressal systems for:
 - Ragging
 - Bullying
 - Sexual harassment
 - Discrimination
- **Legal Accountability**
 - » Institutional failure to prevent self-harm or suicide, especially due to inaction on complaints, shall be treated as culpable, leading to regulatory and legal consequences.
- **Coaching Centre Regulations**
 - » All private coaching hubs (e.g., Kota, Jaipur, Chennai, Hyderabad, Delhi, Mumbai) must implement enhanced mental health safeguards.
 - » States and UTs directed to notify rules within two months to:
 - Mandate registration
 - Set student protection norms
 - Create grievance redressal mechanisms
- **National Task Force**
 - » A National Task Force has been constituted to develop long-term strategies for mental health and suicide prevention in higher education.

Conclusion:

The Supreme Court's intervention serves as a watershed moment in acknowledging mental health as a fundamental concern in India's educational ecosystem. These interim guidelines bridge a crucial policy gap and compel institutions to view student welfare not as an optional add-on, but as a moral, legal, and constitutional obligation. A long-term solution requires legislative backing, institutional reforms, and societal change in how we view academic success and emotional resilience.

Polity & Governance

One Nation, One Election: Constitutional and Practical Perspectives

India has been debating the idea of One Nation, One Election (ONOE) as a transformative electoral reform aimed at improving governance and reducing costs. The proposal seeks to synchronise elections to the Lok Sabha and all State Legislative Assemblies, with the broader objective of reducing frequent disruptions caused by staggered election cycles. A Joint Committee of Parliament is currently examining the draft Bill. Former Chief Justices of India recently appeared before this committee to offer constitutional insights, setting off an important debate about whether the proposal respects the spirit and structure of India's Constitution.

Background and Rationale:

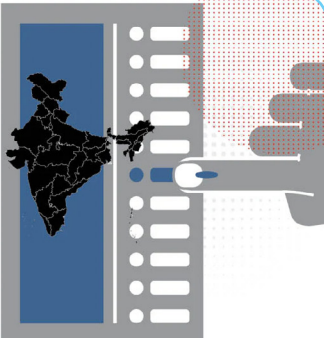
- ❖ Synchronized elections were India's original practice. In the first two decades after Independence, elections to Parliament and State Assemblies were held together. This continued until 1967, when political instability and premature dissolution of several state governments led to desynchronized election cycles.
- ❖ Since then, frequent elections have become a feature of India's democracy, bringing several challenges:
 - » The Model Code of Conduct is enforced repeatedly, halting development projects and delaying decisions.
 - » Election expenses have increased tremendously, with huge administrative and security costs.
 - » Policymakers are often compelled to focus on short-term populist measures

instead of long-term reforms.

- » Voters experience fatigue due to frequent polling.
- ❖ The idea of ONOE is to consolidate elections into a single electoral cycle to reduce these inefficiencies.

WHAT IS

ONE NATION ONE ELECTION?



The Union Government introduced the 'One Nation, One Election' Bills in Lok Sabha on December 17, to achieve simultaneous elections across states, UTs with the General elections.

*What is this proposal?
How will it be implemented?
All you need to know...*

Key Observations by Former Chief Justices:

During their presentations to the Joint Committee, former Chief Justices offered nuanced perspectives.

- ❖ **Basic Structure Doctrine:** Both Justices agreed that the Bill in principle does not violate the basic structure of the Constitution. They clarified that asynchronous elections are not an essential

requirement for free and fair elections. In fact, holding simultaneous elections was India's original electoral model.

- ❖ **Powers of the Election Commission of India:** One significant concern related to the extensive powers proposed for the Election Commission of India (ECI). The Justices cautioned that the Bill remains silent on important scenarios, including:

- » Management of elections during imposition of emergency in a state.
- » Whether an Assembly nearing the end of its term would still face elections or be allowed to continue.

- ❖ **Article 82A and Tenure of Legislatures:** The Bill proposes introducing Article 82A(1) to fix an appointed date for simultaneous elections. One Judge observed that this clause only sets a starting date and does not itself alter the election process or Assembly tenure, making it constitutionally permissible. Another Judge noted that the Constitution only specifies a maximum five-year term for legislatures, not a minimum, and that early dissolution is permitted if voters are informed.

- ❖ **No-Confidence Motion:** To ensure stability, it was proposed that rules governing no-confidence motions could be revised. Such revisions could be implemented through changes in House rules, rather than requiring constitutional amendments, simplifying the process.

Recommendations of Expert Committees:

- ❖ Over the years, various commissions and expert panels have recommended versions of simultaneous elections:
 - » The Election Commission of India (1983) suggested holding Lok Sabha and Assembly elections together.
 - » The Law Commission (1999) proposed simultaneous polls with a provision to delay counting of votes until the Assembly's term expired.
 - » The Standing Committee on Personnel, Public Grievances and Law and Justice recommended a two-phase model.
 - » The NITI Aayog Discussion Paper (2017) supported gradual synchronization.

- » The Law Commission Draft Report (2018) outlined options like advancing or postponing elections to bring them into alignment.

- ❖ More recently, a High-Level Committee led by a former President proposed a two-step implementation:

- » **First phase:** Synchronizing Lok Sabha and State Assembly elections.
- » **Second phase:** Aligning municipal and panchayat elections within 100 days, which would require ratification by half of India's states.

Potential Benefits of ONOE:

- ❖ Supporters of the proposal cite several advantages:

- » **Reducing Policy Paralysis:** The Model Code of Conduct would only be enforced once every five years, allowing governments to implement policies without frequent interruptions.
- » **Lowering Election Costs:** A synchronized system could save resources by combining logistics, security deployment, and administrative planning.
- » **Discouraging Populism:** With fewer elections, governments may focus more on long-term development instead of announcing short-term welfare schemes for electoral gains.
- » **Improving Governance Efficiency:** Election-related offences and disputes could be reduced, easing pressure on courts and law enforcement agencies.
- » **Reducing Politicization of Governance:** Parliamentary and Assembly proceedings would be less frequently disrupted by election-related strategies.

International Experiences:

- ❖ Other democracies have successfully conducted synchronized elections. For example:
 - » Sweden holds elections for its national legislature, provincial councils, and municipal assemblies on a fixed date every four years.
 - » South Africa organizes national and provincial elections together every five years.

Challenges and Criticisms:

Despite potential benefits, significant challenges remain:

- ❖ **Constitutional and Legal Issues**
 - » Synchronization requires amendments to Articles 83, 172, 327, and the Representation of the People Act, 1951.
 - » Questions have been raised about whether state Assemblies' terms can be curtailed or extended without undermining federalism.
 - » The no-confidence motion provision allows early dissolutions, which contradicts the idea of fixed terms.
- ❖ **Operational and Logistical Challenges**
 - » India has over 96 crore voters and more than a million polling booths.
 - » Conducting elections across all levels simultaneously requires vast resources and complex coordination.
- ❖ **Federalism and Political Representation**
 - » Local issues risk being overshadowed by national narratives, weakening the role of regional parties.
 - » Voters might prioritize national parties, reducing diversity in representation.
- ❖ **Reduced Accountability**
 - » Frequent elections keep politicians engaged with public issues.
 - » A single election cycle every five years

may lower political responsiveness and public engagement.

Way Forward:

- ❖ **Building Consensus:** Political parties, constitutional experts and the Election Commission must agree on the roadmap.
- ❖ **Phase-wise Implementation:** Gradual synchronization can help adapt systems and address challenges incrementally.
- ❖ **Legal Safeguards:** Clear provisions must be drafted to protect federal principles and clarify procedures for emergencies or early dissolutions.
- ❖ **Comprehensive Electoral Reforms:** Simultaneous elections should be accompanied by reforms in funding transparency, regulation of election expenses, and fair representation.

Conclusion:

One Nation, One Election offers a bold vision to streamline India's electoral process and strengthen governance. However, it also brings complex legal, political, and logistical questions that cannot be ignored. Thoughtful planning, clear laws, and wide consensus will be critical to ensuring any reform strengthens India's democratic foundations while preserving its federal character.

The Ethics of Innovation: Navigating AI and Copyright Conflicts

Artificial Intelligence (AI) is transforming how people work, create, and communicate. AI models like ChatGPT and Gemini are trained on enormous datasets containing books, articles, images, and sounds collected from the internet. While this data is crucial for making AI systems capable of generating text, images, or music, it has also sparked serious legal and ethical debates. Many authors, artists, and companies argue that training AI on copyrighted materials without permission amounts to theft. They fear that AI could produce content similar to their original work, reducing demand for authentic

creations and harming their livelihoods.

At the same time, tech companies claim that their use of data is "transformative." They argue that AI learns patterns from material and creates something new, which should be allowed under the doctrine of "fair use." Fair use is a legal principle that permits limited use of copyrighted material without permission in specific cases like criticism, commentary, teaching, and research. Recently, two important court cases in the United States ruled in favour of AI companies, marking the first legal decisions on whether training AI models on copyrighted works is permissible.

These judgments set important precedents but also left many questions unanswered.

Understanding Fair Use and Transformative Use:

- ❖ Fair use is central to the legal debate over AI and copyright. Under this principle, courts decide whether using copyrighted material without authorization is acceptable by evaluating factors such as:
 - » The purpose and character of the use
 - » The nature of the copyrighted work
 - » The amount and significance of the portion used
 - » The effect of the use on the market for the original work
- ❖ When an AI model uses copyrighted material to learn patterns and generate entirely new content, tech companies argue this is transformative use. Transformative use means the work has been changed in purpose, meaning, or character so much that it becomes a new form of expression rather than a copy.
- ❖ These arguments were central in both recent cases. While the courts accepted that AI can be transformative, they also recognized that using pirated data creates further legal complications.

Legal Precedent: AI Training and Copyright Use

- ❖ **Court Ruling on Use of Books in AI Training:** A group of writers filed a class-action lawsuit against an AI company, alleging that it had trained its large language models using pirated books without the authors' consent. The books were reportedly sourced from Books3, an online shadow library containing millions of copyrighted texts.
- ❖ **Key Allegations by the Writers:**
 - » The company copied pirated versions of their books to train its models.
 - » This reduced their income and undermined the market for original written content.
 - » The AI-generated outputs could replicate the type of work that authors usually get paid to create.

❖ **Defense by the AI Company:**

- » The company admitted to using Books3 but also said it legally purchased and scanned millions of printed books to build a broader dataset.
- » It claimed the use was transformative, similar to a person reading books to become a better writer.

❖ **Court's Decision:**

- » The judge ruled that the training of AI on copyrighted material could be considered fair use because the outputs were new and different.
- » He emphasized that the AI models "turn a hard corner and create something different," rather than replicate the original works.
- » However, the court also acknowledged that storing and copying pirated materials infringes copyright.
- » A separate trial has been ordered to determine how much the company owes in damages for that infringement.

- ❖ **Court Ruling on Training Methods and Market Impact:** Another group of writers filed a class-action suit against a different AI company, claiming that its language models were trained on copyrighted content without permission, sourced from shadow libraries like Books3, Anna's Archive, and Libgen.

❖ **Key Concerns of the Writers:**

- » The authors argued that the AI's ability to generate content based on their books reduced the demand for original works.
- » They sought financial damages and compensation for market dilution.

❖ **Defense by the AI Company:**

- » The company said it took steps to ensure its models did not reproduce large portions of any specific copyrighted text.
- » It claimed that internal tests showed the models could not generate more than 50 consecutive words from any copyrighted book.
- » The company also argued that the outputs did not harm the market for original books.

❖ **Court's Decision:**

- » The judge noted that the plaintiffs had

not provided evidence of market dilution.

- » They stated that unless the AI-generated outputs replaced demand for original books, the market effect was not proven.
- » While accepting the AI's transformative nature, the court also mentioned that tech firms benefiting from AI should consider ways to compensate creators.
- » The company must still face further legal proceedings regarding the use of pirated content.

Ongoing Legal Disputes and Wider Implications

- ❖ While the recent rulings favoured AI companies on the question of fair use, they did not provide full legal clearance. Both companies are still being held accountable for the use of pirated material.
- ❖ Moreover, many other lawsuits are active or emerging:
 - » Twelve consolidated lawsuits from authors, publishers, and news outlets against OpenAI and Microsoft.
 - » Visual artists suing image-generation tools for using their art without consent.
 - » Getty Images suing Stability AI for using over 12 million of its copyrighted photographs.
 - » In India, a major news agency and several digital publishers have sued OpenAI for using Indian content in training without permission.
- ❖ These cases show that legal challenges to AI's training practices are just beginning. Concerns around fair use, creator compensation, and piracy will likely

dominate the policy agenda in the coming years.

Conclusion:

- ❖ The recent US court rulings highlight the complexity of balancing innovation with the rights of creators. While AI companies argue that training models on vast datasets is essential for progress and serves the public good, authors and artists see this as exploitation of their work without acknowledgment or compensation.
- ❖ The principle of fair use, especially transformative use, has become the cornerstone of these legal battles. However, judges have recognized that while AI models may create something new, using pirated content still raises serious legal and ethical concerns.
- ❖ Moving forward, clear regulations and frameworks are needed to define:
 - » What counts as fair use in AI training
 - » How creators can be fairly compensated
 - » How to prevent misuse of copyrighted content
 - » What safeguards should be in place to protect markets for original works
- ❖ As AI systems continue to evolve, courts, policymakers, and industry stakeholders will need to work together to create fair rules that encourage innovation while respecting the rights of authors, artists, and other creators. The outcomes of these cases will shape how AI and copyright law develop in the coming years, both in the US and around the world.

Need to Balance Freedom and Responsibility in the Digital Age

Context:

In a significant observation with wide-reaching implications, the Supreme Court of India has initiated a discussion on the need for citizen-level guidelines to regulate divisive content on social media platforms. The court emphasised that while freedom of speech and expression

is a core constitutional right, it must be accompanied by self-restraint, responsibility, and a commitment to the values of fraternity and secularism.

- ❖ The remarks came during the hearing of a plea filed by a resident of Kolkata seeking the consolidation of multiple FIRs filed against

him across various states for allegedly divisive social media posts. While the court refrained from discussing the content of the posts directly, it used the occasion to raise larger constitutional concerns about how freedom of speech is being exploited in the online space, causing social division and legal overload.

What Led to the Supreme Court's Intervention?

- ❖ The petitioner had been booked under multiple FIRs across different states, including West Bengal, Assam, Delhi, Maharashtra, and Haryana for allegedly inflammatory posts on social media.
- ❖ The West Bengal Police had also arrested the petitioner and registered two FIRs.
- ❖ Later, the Supreme Court directed that no coercive action be taken against him in the FIRs filed outside West Bengal.
- ❖ The petitioner's lawyer clarified that while the posts were not defended, they had been deleted and an apology had been issued.
- ❖ In response to the growing number of such cases and the burden they place on the judicial and policing system, the court expanded the scope of the case to address the systemic abuse of free speech in digital spaces.

Key Observations of the Court:

- ❖ **Free Speech Is Valuable but Not Absolute**
 - » The court reiterated that Article 19(1)(a) of the Constitution guarantees freedom of speech and expression, but it is subject to reasonable restrictions under Article 19(2).
 - » These restrictions include grounds such as public order, morality, decency, and the integrity of the nation.
 - » Citizens must understand the value of this right and not misuse it for abuse or divisive rhetoric.
- ❖ **Call for Self-Restraint by Citizens**
 - » The court questioned: "Why can't the citizens regulate themselves? Citizens must know the value of freedom of speech and expression."

- » It warned that if citizens fail to exercise self-restraint, then the state will be forced to step in. This is undesirable in a democracy.
- » It stressed that one of the fundamental duties of citizens under Article 51A is to uphold the unity and integrity of the country, which is being increasingly violated through online behaviour.

- ❖ **Not Censorship but Democratic Values:** The court clearly stated that it was not proposing censorship, but rather looking at norms for responsible citizen behaviour online in the interest of:

- » Fraternity
- » Secularism
- » Dignity of individuals

- ❖ **Abuse of Free Speech is Clogging Courts:** The bench expressed concern that unregulated social media abuse is resulting in a flood of litigation and FIRs, putting pressure on both:

- » Judicial institutions, and
- » Police resources, which could otherwise be engaged in serious crimes.
- » This is not only wasteful but unsustainable, and a structured citizen-based framework for responsible online behaviour is urgently needed.

Horizontal vs. Vertical Application of Fundamental Rights:

- ❖ A key constitutional principle highlighted was the horizontal application of rights:
 - » Traditionally, fundamental rights were enforceable only against the state (vertical application).
 - » However, in a 2023 Supreme Court judgment, a horizontal approach was recognised.
 - » This means a citizen can also be held accountable for violating another citizen's fundamental rights—a crucial principle in the age of online speech where most harm is inflicted between private individuals.
 - » This principle strengthens the legal foundation for framing citizen-level obligations in the context of digital

speech and behaviour.

Discussion on Social Media and Hate Speech:

The court recognised the toxic nature of online discourse, particularly how hate speech and polarising opinions thrive due to a lack of editorial oversight on social media platforms.

❖ **Fraternity as a Counterforce**

- » The bench emphasised that fraternity among citizens, as envisioned in the Preamble, could serve as a powerful antidote to hate speech.
- » The idea is that if citizens uphold mutual respect, divisive content will lose traction and relevance.

❖ **The Role of Public Reaction**

- » It was noted that the public reaction is the "oxygen" for such speech—if people ignore or socially boycott divisive content instead of reacting or reposting it, its reach will decline.
- » Citizens need to reflect on what they promote or respond to online.

❖ **The Need for Awareness and Social Movements**

- » The court discussed the difficulty of enforcing self-restraint, especially in a digital ecosystem where there is no editorial gatekeeping.
- » However, it acknowledged the potential of social movements to raise awareness, identify hate speech early, and create a collective culture of rejection.

Parallel Concern Raised in Other Cases

- ❖ In May 2024, another bench of the Supreme Court, while hearing a separate case involving a YouTuber, had flagged similar concerns. The issue was how to regulate social media content without infringing upon the freedom of speech. This indicates a consistent judicial concern about the lack of accountability on social platforms.

Implications for Governance, Society, and Law:

- ❖ **Legal and Policy Frameworks:** This case opens up the path for the judiciary to

recommend or create citizen-level protocols that work parallel to existing statutory frameworks like:

- » The Information Technology Act, 2000
- » IT (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021

❖ **Governance Challenges**

- » The state faces limitations in regulating individual-level speech without being accused of censorship or political bias.
- » Empowering citizens to regulate themselves may provide a democratic middle ground.

❖ **Educational and Cultural Change**

- » The ultimate solution lies in building awareness, especially among the youth, about the responsibility attached to digital speech.
- » Incorporating constitutional values in educational content and promoting digital civility campaigns are key steps forward.

Conclusion:

The Supreme Court's remarks on the regulation of speech on social media come at a time when digital communication is shaping public opinion, political discourse, and social harmony. The court has rightly shifted the conversation from censorship by the state to self-regulation by citizens. This approach recognises the power of speech in a democracy but also highlights the individual responsibility that accompanies that power. The idea is not to silence citizens, but to create a digital culture grounded in fraternity, mutual respect, and constitutional morality. As the judiciary continues to explore frameworks for this balance, the responsibility now also lies with civil society, educators, and citizens to reflect, engage, and ensure that freedom does not become a tool of harm, but a means of building a just and inclusive society.

Short Issues

Bihar Special Intensive Revision of Electoral Rolls

Context:

The Supreme Court of India recently intervened in the ongoing Special Intensive Revision (SIR) of electoral rolls in Bihar, urging the Election Commission of India (ECI) to prioritise mass inclusion over en masse exclusion of voters. The SIR, a major electoral update initiative in the poll-bound state, has come under scrutiny for the potential disenfranchisement of millions of voters.

About the Bihar SIR:

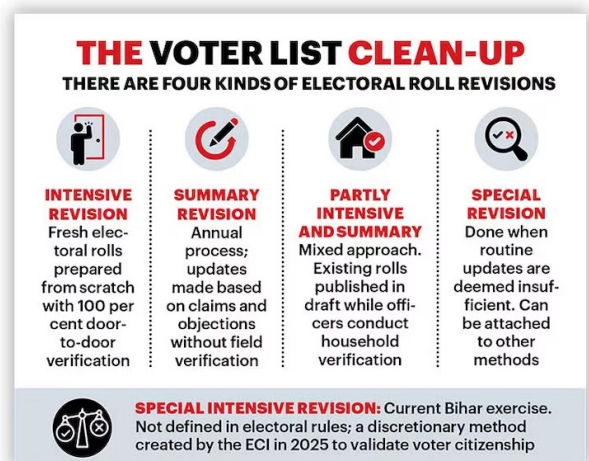
- The Special Intensive Revision (SIR) is a process initiated by the ECI to update the electoral rolls in Bihar ahead of the upcoming Assembly elections. As part of the SIR, voters are required to fill out enumeration forms and submit identity and eligibility documents, particularly proof of date and place of birth.
- However, the exercise has faced criticism for the following reasons:
 - » Lack of clarity and uniformity in accepted documents.
 - » Alleged resemblance to a citizenship verification drive.
 - » Fear of large-scale voter deletions, with nearly 4.5 crore people at risk of exclusion.
 - » Short timeframes for verification and inclusion.

Supreme Court's Observations:

- The court pressed the ECI to include Aadhaar cards and Elector Photo Identity Cards (EPIC) as valid identity proofs.
- The court emphasised the goal of SIR should be inclusion, not exclusion. He directed the ECI to add Aadhaar and EPIC to the list of indicative documents.
- The court affirmed that even after the draft is published, it retains the authority to overturn any decision of the ECI if violations are proved.

Petitioners' Concerns:

- The burden of proof has been unfairly shifted to voters to prove their eligibility.
- Voters excluded from the draft will be left "rudderless", forced to file objections and go through cumbersome review procedures.
- The entire exercise risks becoming a de facto citizenship verification, with a disproportionate impact on poor, rural, and marginalised communities.
- Five of the 11 documents prescribed by the ECI do not provide date or place of birth, making compliance impractical.



The 1977 Judgment:

- The Supreme Court also referred to a 1977 judgment in the case of M.S. Gill versus Chief Election Commissioner while hearing a petition challenging the Special Intensive Revision (SIR) of electoral rolls in Bihar.
 - » The 1977 judgment was based on a reference after the Election Commission canceled the election to the 13-Ferozepur parliamentary constituency in Punjab due to mob violence and ordered fresh elections.
 - » The Supreme Court upheld the Election Commission's power to cancel elections and order fresh polls under Article 324 but emphasized that this power should not be used arbitrarily.

Conclusion:

As the country prepares for state elections, administrative efficiency must not override citizens' right to vote. This case raises broader issues around voter rights, due process, and the balance between electoral integrity and inclusiveness. The ECI has a constitutional duty to ensure integrity of the electoral roll—but this must be achieved without excluding eligible voters, particularly from vulnerable sections of society.

Dispute Over Citizenship of Children of OCI Cardholders

Context:

The Ministry of Home Affairs (MHA) has appealed against a Delhi High Court's ruling that granted Indian citizenship to a 17-year-old girl born in India to parents holding Overseas Citizen of India (OCI) cards. While the MHA did not oppose granting citizenship to Rachita, it challenged the legal reasoning behind the ruling. The Ministry was concerned that declaring her as “not an illegal migrant” and a “person of Indian origin” may set a precedent and “open floodgates” for similar claims, potentially diluting the Citizenship Act, 1955.

Key Issues

- **Definition of "Illegal Migrant":**
 - » The MHA's appeal challenges the single-judge bench's observation that Rachita does not qualify as an “illegal migrant” solely because she was born in India and has never left the country.
 - » The MHA argues that the definition of “illegal migrant” under Section 2(1)(b) of the Citizenship Act, 1955, would include a child born in India without valid travel documents.
- **Person of Indian Origin:**
 - » The MHA also challenges the court's declaration that Rachita is a “person of Indian origin” based on her mother's birth in independent India.
 - » However, the MHA argues this is incorrect as per Section 5 of the Citizenship Act,

which ties “Indian origin” to those born in undivided India before 15 August 1947 or specific conditions thereafter.

- » The government fears broadening the interpretation could unintentionally extend eligibility to people born in other countries like Pakistan or Bangladesh after independence.

Implications:

- **Citizenship Rights:** The case highlights the issue of statelessness and the challenges faced by individuals born to OCI cardholders in India. The MHA's appeal may have implications for the citizenship rights of such individuals, potentially limiting their access to Indian citizenship.
- **Harmonious Reading of Laws:** The MHA's submission emphasizes the need for a harmonious reading of the Citizenship Act, 1955, with the Foreigners Act, 1946. This could lead to a more nuanced understanding of the laws governing citizenship and foreigners in India.

Concerns and Challenges:

- **Floodgates Argument:** The MHA's concern that the single-judge bench's ruling may open floodgates for other illegal migrants seeking Indian citizenship is a valid one. However, it is essential to balance this concern with the need to protect the rights of individuals like Rachita who have been rendered stateless due to circumstances beyond their control.

About OCI Cardholders:

- The Overseas Citizen of India (OCI) scheme was introduced in 2005 by amending the Citizenship Act. The scheme allows eligible foreign nationals of Indian origin (excluding Pakistan and Bangladesh) and their descendants to register as OCI cardholders. It also includes spouses of Indian citizens or OCI cardholders, subject to conditions.
 - » OCI cardholders enjoy several benefits, including a multiple-entry, multi-purpose lifelong visa to visit India. They receive parity with NRIs in financial,

economic, and educational fields, except in owning agricultural or plantation land and inter-country adoption.

- » After holding an OCI card for five years and residing in India for at least one year during that period, they can apply for Indian citizenship under Section 5(1)(g) of the Citizenship Act, 1955.
- » Additionally, OCI cardholders are eligible to enroll in the National Pension Scheme (NPS), similar to NRIs, expanding their financial planning options in India.

Conclusion:

The MHA's appeal against the Delhi High Court's ruling raises important questions about citizenship laws and the rights of individuals born to OCI cardholders. The outcome of this case will have significant implications for the citizenship rights of individuals born to OCI cardholders in India.

PM Dhan-Dhaanya Krishi Yojana

Context:

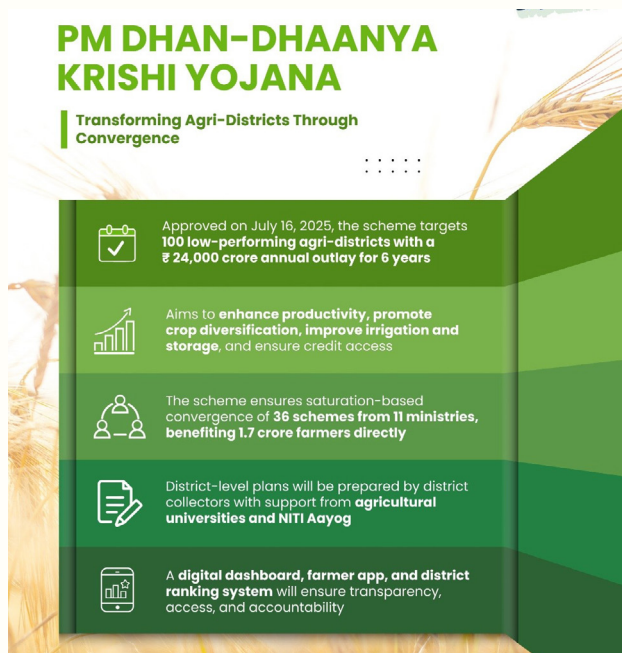
The Union Cabinet on July 16, 2025 approved the "Prime Minister Dhan-Dhaanya Krishi Yojana", or PMDDKY, to enhance agricultural productivity and increase adoption of sustainable agricultural practices across the country. The scheme was announced in the Budget earlier this year. The total outlay of the scheme is Rs. 24,000 crore per year for six years beginning 2025-26. This scheme will help 1.7 crore farmers.

Key Features of PMDDKY:

- **Merging of Schemes:** The PMDDKY will merge 36 existing schemes from 11 ministries, ensuring a coordinated approach to agricultural development.
- **100 Districts:** The scheme will focus on 100 districts identified based on low productivity, low cropping intensity, and less credit disbursement.
- **District-Level Planning:** A District Agriculture and Allied Activities Plan will

be finalized by the District Dhan Dhaanya Samiti, which will include progressive farmers as members.

- **National Goals:** The district plans will be aligned with national goals, including crop diversification, conservation of water and soil health, and self-sufficiency in agriculture and allied sectors.



Objectives of the scheme:

- Improve post-harvest storage at panchayat and block levels.
- Enhance irrigation infrastructure.
- Ensure better access to short-term and long-term credit.
- Promote natural and organic farming, crop diversification, and water-soil conservation.
- Foster value addition and allied activities in agriculture.
- Encourage local partnerships, including with the private sector.

Key agriculture-related initiatives introduced in Union Budget 2025-26:

- The Union Budget 2025-26 places agriculture at the center of India's growth strategy, with a focus on productivity, sustainability, and farmer incomes. Major

initiatives include:

- » **PM Dhan-Dhaanya Krishi Yojana** for enhancing crop productivity and sustainable practices in 100 low-productivity districts.
- » **Mission for Aatmanirbharta in Pulses** to boost domestic production of Tur, Urad, and Masoor using climate-resilient seeds and assured procurement.
- » **National Mission on High Yielding Seeds and Cotton Productivity Mission** to promote better quality, resilient crop varieties.
- » **Enhanced Kisan Credit Card (KCC)** loan limit from Rs.3 lakh to Rs.5 lakh to expand access to credit for 7.7 crore farmers, fishermen, and dairy farmers.

Conclusion:

PM Dhan-Dhaanya Krishi Yojana has the potential to transform Indian agriculture, promoting sustainable practices, increasing productivity, and enhancing farmer incomes. With its comprehensive approach and focus on district-level planning, the scheme is poised to make a significant impact on the agricultural sector.

Maharashtra Special Public Security (MSPS) Bill

Context:

Maharashtra Assembly recently passed the Maharashtra Special Public Security (MSPS) Bill by a voice vote. The Bill seeks to provide the state with legal tools for the effective prevention of unlawful activities by extremist and similar organisations. While the government argues that this law is necessary to preserve public order and national security, civil society and legal experts have raised serious concerns about its broad scope and potential misuse.

Key Provisions of the MSPS Bill:

- The MSPS Bill grants sweeping powers to the state government, particularly the ability to declare any organisation as "unlawful" if it is believed to be involved in activities deemed

threatening to public order or institutional stability.

- The Bill outlines four categories of offences:
 - » Membership in an unlawful organisation;
 - » Fundraising for such organisations;
 - » Managing or assisting in their operations;
 - » Committing any "unlawful activity", a term defined expansively.
- Penalties under the Bill are stringent, ranging from 2 to 7 years of imprisonment and fines between Rs.2 lakh and Rs.5 lakh. The most serious offence — committing an "unlawful activity" — attracts seven years of imprisonment and a Rs.5 lakh fine. Importantly, all offences are cognizable and non-bailable, giving police the authority to arrest without a warrant.
- The definition of "unlawful activity" under the Bill is notably broad. It includes not just acts of violence, but also verbal or symbolic expression, signs, or representations that could be interpreted as endangering public order or interfering with the law.
- Activities such as "practising disobedience", disrupting traffic or public communication, or collecting funds for protests could fall under this scope.

Constitutional and Legal Concerns:

- The MSPS Bill has drawn comparisons to central laws such as the Unlawful Activities (Prevention) Act (UAPA) and the Prevention of Money Laundering Act (PMLA). However, these are extraordinary laws with high thresholds for action, often related to terrorism, national sovereignty, or large-scale money laundering.
- Legal scholars have raised concerns that the vague and sweeping definitions under the MSPS Bill could criminalise legitimate dissent and peaceful protests, infringing on freedom of speech and expression under Article 19 of the Constitution.
 - » For instance, the phrase "encouraging disobedience to the law" could potentially apply to any activist or citizen criticising government policy.
- In the 1962 *Kedar Nath Singh v. State of*

Bihar case, the Supreme Court clarified that speech critical of the government cannot be penalised unless it incites violence. The MSPS Bill appears to blur that constitutional distinction.

- Unlike ordinary criminal laws, which operate under the principle of "innocent until proven guilty", special laws like MSPS often dilute these safeguards, raising the risk of arbitrary detention and misuse by authorities.

Conclusion:

While the Maharashtra Special Public Security Bill aims to bolster the state's ability to combat extremism, it must strike a careful balance between security and civil liberties. Given its wide-ranging definitions and potential for overreach, the law will likely be tested in the courts and in the court of public opinion.

North Eastern Region District SDG Index 2023-24

Context:

NITI Aayog, in collaboration with the Ministry of Development of North Eastern Region and UNDP, has released the second edition of the North Eastern Region (NER) District Sustainable Development Goals (SDG) Index 2023-24. Covering 121 districts across eight states, this index measures progress on SDGs to guide policies and monitor development at the district level. The first edition was launched in 2021, and since then, the index has become an important reference for regional planning.

Key Highlights:

- **Overall Performance:** Composite scores ranged from 58.71 in Longding, Arunachal Pradesh (lowest) to 81.43 in Hnahthial, Mizoram (highest).
- **Districts were classified into:**
 - » Achiever: Score 100 (none this year)
 - » Front Runner: Scores 65-99
 - » Performer: Scores 50-65
 - » Aspirant: Scores below 50 (none recorded)

Top Performing States and Districts:

- » All districts in Mizoram, Sikkim, and Tripura achieved Front Runner status.
- » Hnahthial, Mizoram ranked as the best-performing district in the region.
- » Nagaland made strong gains, with three districts entering the top 10.
- » Sikkim displayed the most consistent performance, with only a 5.5-point gap between its highest and lowest-scoring districts.

State-wise Range of District Scores:

- » **Arunachal Pradesh:** Lower Dibang Valley (73.36), Longding (58.71)
- » **Assam:** Dibrugarh (74.29), South Salmara-Mankachar (59.71)
- » **Manipur:** Imphal West (73.21), Pherzawl (59.71)
- » **Meghalaya:** East Khasi Hills (73.00), East Jaintia Hills (63.00)
- » **Mizoram:** Hnahthial (81.43), Lawngtlai (67.71)
- » **Nagaland:** Mokokchung (78.43), Zunheboto (63.36)
- » **Sikkim:** Gangtok (76.64), Gyalshing (71.14)
- » **Tripura:** Gomati (78.79), Dhalai (72.29)

Top 10 Districts in NER District SDG Index 2023-24

DISTRICT	STATE	SCORE	RANK
Hnahthial	Mizoram	81.43	1
Champhai	Mizoram	79.86	2
Gomati	Tripura	78.79	3
Mokokchung	Nagaland	78.43	4
West Tripura	Tripura	77.64	5
Kohima	Nagaland	76.93	6
South Tripura	Tripura	76.71	7
Gangtok	Sikkim	76.64	8
Kolasib	Mizoram	76.50	9
Dimapur	Nagaland	76.29	10

Sectoral Improvements:

- » 85% of districts increased their composite scores compared to the previous edition.
- » Good Health and Well-being indicators improved in 93 districts.
- » All districts in Assam showed gains in Zero Hunger, Quality Education, Clean Water and Sanitation, and Decent Work and Economic Growth.

Consistency and Variations:

- » Tripura showed strong performance with minimal intra-state variation (6.5 points).
- » Mizoram and Nagaland had some of the highest-scoring districts but also displayed wider ranges (13.72 and 15.07 points respectively).
- » The index follows NITI Aayog's SDG India Index methodology and aims to localise monitoring and drive targeted action across sectors.

Conclusion:

The second NER District SDG Index highlights steady improvement across the region, driven by national flagship schemes and local efforts. Progress is visible in health, education, and livelihoods, with Mizoram, Sikkim, and Tripura emerging as consistent performers. Sustained focus on low-scoring districts and reducing gaps within states will be key to achieving the SDG targets by 2030. The index remains a critical tool for evidence-based planning and inclusive development in the Northeast.

Government Survey on Education

Context:

The PARAKH Rashtriya Sarvekshan 2024, a national-level learning assessment survey, was recently published. The survey highlights the continuing impact of the COVID-19 pandemic on foundational learning in India.

About PARAKH Rashtriya Sarvekshan:

- PARAKH (Performance Assessment, Review and Analysis of Knowledge for Holistic Development) is the revamped version of the National Achievement Survey (NAS).
- Conducted in December 2024.
- Covered over 21.15 lakh students from Classes 3, 6, and 9 across 74,229 schools.
- Structured in alignment with NEP 2020's learning stages:
 - » Class 3 – Foundational Stage
 - » Class 6 – Preparatory Stage

- » Class 9 – Middle Stage

Key Findings:

Despite improvements from 2021 levels, Class 3 students have not reached the proficiency levels seen in 2017, before the pandemic disrupted education across the country.

Subject	2017	2021	2024
Language	66.7%	62%	64%
Mathematics	63%	57%	60%

Language Learning Gaps

- » **Weakest area:** Reading short stories and comprehension – 60%
- » **Strongest area:** Vocabulary use in daily interactions – 67%

Mathematics Learning Gaps

- » **Weakest areas:** Understanding geometric shapes and basic money transactions – 50%
- » **Strongest area:** Recognizing patterns and numbers – 69%

Status of Classes 6 and 9

- » Students in Classes 6 and 9 scored below 50% in all subjects except language.
- » Learning levels in these grades were severely impacted due to the loss of nearly two academic years.
- » These results reflect the long-term implications of school closures and challenges in remote learning during the pandemic.

Significance of the Findings:

- Reinforces Foundational Learning as a National Priority
 - » The data confirms that early-grade education requires urgent attention to mitigate long-term developmental deficits.
- Validates NEP 2020's Emphasis on Staged Learning
 - » The NEP's focus on dividing school education into stages (Foundational, Preparatory, Middle, Secondary) is supported by evidence showing stage-specific learning challenges.
- Informs Policy for Targeted Interventions
 - » Focused remediation is essential at the

primary level (Class 3).

- » The government's NIPUN Bharat Mission, which targets foundational literacy and numeracy, needs to be strengthened and scaled further.

Challenges Highlighted

- **Digital divide:** Inadequate access to online learning tools during the pandemic.
- **Teacher capacity:** Lack of training and adaptability to remote teaching methods.
- **Assessment disparities:** Inconsistent assessment mechanisms across states.
- **Socio-economic barriers:** Increased dropout risk and unequal recovery among marginalized students.

Conclusion:

The PARAKH 2024 survey is a critical wake-up call for India's education system. It underlines the persistent learning losses from the pandemic and the need for multi-pronged, systemic interventions to ensure that all children, regardless of background, can access equitable and quality foundational education. For India to meet its SDG 4 targets and fulfill the vision of NEP 2020, urgent investment in foundational literacy and numeracy is non-negotiable.

Incentive Scheme for E-Trucks

Context:

The Government of India has launched its first-ever incentive scheme for electric trucks (e-trucks) under the PM E-DRIVE Scheme. Heavy Industries Minister H.D. Kumaraswamy officially launched the scheme, aiming to support the deployment of approximately 5,600 e-trucks across the country.

Key Features of the Scheme:

- The scheme provides financial incentives for N2 and N3 category e-trucks, with demand incentives ranging up to Rs.9.6 lakh, depending on the gross vehicle weight.
- The N2 category includes trucks with a gross vehicle weight of above 3.5 tonnes

and up to 12 tonnes, while the N3 category covers those exceeding 12 tonnes up to 55 tonnes.

Benefits of the Scheme:

- The scheme is expected to promote indigenous manufacturing, reduce logistics costs, and lower the carbon footprint of the transportation sector.
- The potential beneficiaries of the scheme include e-truck users in the cement, ports, steel, and logistics sectors.
- To ensure the reliability of electric trucks, manufacturers will provide a comprehensive manufacturer-backed warranty, including a five-year or 500,000-kilometer warranty for the battery.

Scheme for Incentivising e-Truck Under PM E-DRIVE

⚡ In the scheme the demand incentives will be extended to N2 and N3 category electric trucks, as defined under the Central Motor Vehicle Rules (CMVR).

E-truck category	GVW (tonnes)	Maximum incentive/ e-truck (₹ lakh)
N2	>3.5 & ≤7.5	2.7
	>7.5 & ≤12	3.6
N3	>12 & ≤18.5	7.8
	>18.5 & ≤35	9.6
	>35 & ≤55	9.3



Implications:

- The scheme is a strategic move to support India's commitment to reducing vehicular emissions and achieving its net-zero 2070 goals.
- By promoting the adoption of e-trucks, the government aims to decrease the country's reliance on fossil fuels and lower greenhouse gas emissions.
- To avail of incentives, scrapping old polluting trucks is mandatory, ensuring that the scheme contributes to a cleaner and more sustainable transportation sector.

About PM E-DRIVE Scheme:

- The PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM

E-DRIVE) is a flagship EV promotion scheme approved by the Cabinet with an outlay of Rs.10,900 crore, effective from October 2024 to March 2026.

▪ **Objective of the scheme:**

- » Accelerate the adoption of electric vehicles (EVs) across multiple vehicle categories
- » Establish widespread EV charging infrastructure
- » Develop a domestic EV manufacturing ecosystem aligned with Aatmanirbhar Bharat

▪ **Types of vehicles eligible for incentives:**

- » Electric 2-wheelers (e-2Ws) and 3-wheelers (e-3Ws) (private & commercial)
- » Electric buses for public transport
- » E-ambulances
- » E-trucks with scrapping certificates

▪ **Key incentive provisions:**

- » Incentive is capped at 15% of the ex-factory price or a fixed per-vehicle limit (whichever is lower)
- » Only EVs priced below a notified threshold qualify

Conclusion:

The launch of the incentive scheme for e-trucks is a significant step towards promoting clean freight mobility in India. With its focus on reducing emissions, promoting indigenous manufacturing, and lowering logistics costs, the scheme is expected to have a positive impact on the transportation sector. By supporting the adoption of e-trucks, the government is working towards a more sustainable and environmentally friendly transportation system for the country.

Vision Report on Chemical Industry

Context:

Recently, NITI Aayog has unveiled a landmark report titled “Chemical Industry: Powering India’s Participation in Global Value Chains”,

setting the vision for India to emerge as a global chemical manufacturing powerhouse by 2040. The report provides an in-depth roadmap to harness the untapped potential of the sector and address key structural challenges through strategic interventions.

Key goals under the vision report:

▪ **Key Goals by 2030:**

- » 5–6% share in global chemical GVCs
- » 7 lakh new skilled jobs
- » Net Zero chemical trade balance
- » USD 35–40 billion in incremental exports

▪ **Vision for 2040:**

- » Achieve a USD 1 trillion chemical industry
- » Capture up to 12% of global chemical value chains
- » Generate millions of skilled jobs
- » Become a top-tier exporter in specialty and green chemicals

- India currently accounts for 3.5% of the global chemical value chain (GVC). The sector aims to reach USD 1 trillion in output by 2040, while closing the trade deficit of USD 31 billion recorded in 2023.

Challenges Hindering Growth:

Despite its size and importance, India’s chemical industry faces critical bottlenecks that limit its global competitiveness:

- **High Import Dependence:** India relies heavily on imported feedstock and specialty chemicals, driving a trade deficit of USD 31 billion (2023).
- **Weak Infrastructure:** Outdated clusters, high logistics costs, and port inefficiencies raise production costs.
- **Low R&D Spending:** At just 0.7% of total investment, India lags behind the global average of 2.3% in chemical R&D.
- **Regulatory Delays:** Environmental clearance bottlenecks slow down project execution.
- **Skilled Manpower Deficit:** A 30% shortfall in trained professionals, especially in green chemistry and process safety, undermines sectoral growth.

Proposed policy interventions and potential impact by 2030

INTERVENTION 1
Establish world-class chemicals hubs in India

INTERVENTION 2
Develop existing port infrastructure for storage and handling of chemicals

INTERVENTION 3
Introduce an opex subsidy for chemicals with high import dependence, export potential, and end-market criticality

INTERVENTION 4
Develop and access technologies to enhance self-sufficiency and foster innovation

INTERVENTION 5
Fast-track environmental clearance with transparency and accountability

INTERVENTION 6
Securing FTAs to support industry growth

INTERVENTION 7
Talent and skill upgradation in the chemical industry

700K
Additional employment generation by 2030

5-6%
Production share in the Global Value Chain by 2030 (from 3-3.5% in 2023)

35-40 \$ bn
Additional exports in 2030 vs 2023

220-280 \$ bn
India production of chemicals by 2030

Net zero
India trade balance in chemicals by 2030

- » Fast-track environmental clearances via DPIIT audit committee
- » Improve transparency and monitoring
- **FTAs for Growth**
 - » Secure chemical-specific trade provisions
 - » Simplify FTA access and compliance for exporters
- **Skill Development**
 - » Expand training institutes and vocational programs
 - » Introduce industry-focused courses and teacher upgrades

Conclusion:

Achieving these goals requires coordinated action from central and state governments, industry stakeholders, academic institutions, and investors. The scale and speed of implementation will determine India's transformation into a global value chain leader in chemicals by 2040

Strategic Interventions Proposed by NITI Aayog:

NITI Aayog's report outlines a streamlined set of reforms to boost India's chemical sector competitiveness through fiscal, infrastructural, regulatory, and talent-based initiatives:

- **Chemical Hubs**
 - » Upgrade existing clusters, develop new parks
 - » Set up a central Chemical Fund and local administrative bodies.
- **Port Infrastructure**
 - » Form a Chemical Port Committee
 - » Enhance 8 high-potential clusters for exports.
- **Opex Subsidy Scheme**
 - » Incentivize key chemical production
 - » Focus on reducing imports and boosting exports.
- **R&D & Innovation**
 - » Strengthen industry-academia linkages via dedicated interface
 - » Partner with MNCs for advanced technologies.
- **Regulatory Reforms**

Stray Dog Menace and Euthanasia Policy in Kerala

Context:

Kerala is currently facing a serious public health crisis due to a surge in stray dog attacks. In 2024 alone, over 3.17 lakh people sought medical treatment for dog bites in the state. Rabies-related deaths have also increased, sparking public outrage and policy discussions. In response, the state government has allowed local bodies to carry out euthanasia of diseased stray dogs under the Prevention of Cruelty to Animals (Animal Husbandry Practices and Procedures) Rules, 2023.

Why Are Stray Dogs Becoming a Problem?

- Stray dogs have long coexisted with human settlements in India, but in recent years, they have increasingly posed health and safety risks. Several reasons contribute to the growing menace:
 - » Uncontrolled population growth due to ineffective sterilisation and vaccination drives.

- » Aggressive behaviour triggered by hunger, illness, or perceived threats.
- » Irresponsible pet ownership and abandonment of dogs.
- » Lack of clear feeding zones, leading to territorial conflicts.
- » Abuse, neglect, and forced relocation of strays, making them defensive and violent.
- » Community feeding practices without adequate safeguards or monitoring.

What Do the 2023 Rules Say?

- The Prevention of Cruelty to Animals (Animal Husbandry Practices and Procedures) Rules, 2023 aim to provide a structured approach to stray dog management, supplementing the existing Animal Birth Control (ABC) Rules. Key provisions include:
 - » Standardised implementation of sterilisation and anti-rabies vaccination.
 - » Monitoring Committees at the State, district, and municipal levels to oversee ABC and related programs.
 - » Mandatory involvement of AWBI-recognised organisations for carrying out sterilisation.
 - » Feed spot designation by RWAs in locations with minimal public footfall.
 - » Creation of Animal Help Centres to report bite cases and seek assistance.
 - » Responsibility placed on local bodies for controlling stray populations and preventing conflicts.
- Most importantly, the rules permit euthanasia of stray dogs only if:
 - » The animal is diagnosed as incurably ill or mortally wounded.
 - » A registered veterinary practitioner certifies that keeping the animal alive would be cruel.
 - » The procedure is carried out humanely by a qualified veterinarian under committee supervision.

Kerala's Recent Measures:

- Due to the limitations of the ABC Rules (which do not allow euthanasia), Kerala has turned to the 2023 Animal Husbandry

Rules to address urgent situations:

- » Local bodies are now empowered to carry out euthanasia of severely ill or diseased strays.
- » Mobile ABC units are being deployed across 152 block panchayats to fast-track sterilisation.
- » A vaccination campaign for stray dogs is being taken up, followed by licensing and vaccination of pet dogs.
- » The state has urged the Union government to amend the ABC Rules to allow euthanasia in select public health emergencies.
- Local opposition to permanent ABC centres has led to a focus on mobile units that can operate without triggering protests. Authorities have also warned against obstructing public officials working on ABC programmes.

Conclusion:

With the rising number of dog bite cases and rabies deaths, reactive policies must be matched with systemic and humane long-term strategies. Clearer laws, community participation, and robust ABC implementation are essential to resolving this ongoing conflict between humans and strays.

Supreme Court on Equal Inheritance Rights for Tribal Women

Context:

The Supreme Court of India recently held that excluding tribal women from inheritance on the sole basis of gender is discriminatory and violates constitutional guarantees of equality. The Court ruled that tribal women, even though not covered under the Hindu Succession Act, are entitled to equal rights in ancestral property unless a specific custom barring such inheritance is proved.

Background of the Case:

- The case involved legal heirs of a Scheduled Tribe woman named Dhaiya, who sought

a share in the property of her maternal grandfather. Her claim was opposed by male family members who argued that under prevailing tribal customs, women were not entitled to inherit ancestral property.

- Three lower courts—the trial court, the first appellate court, and the High Court—dismissed the women's claim, asserting that the appellants had failed to prove the existence of any custom that allowed inheritance by tribal women.
- However, the matter reached the Supreme Court, which took a fundamentally different approach to the question of gender-based exclusion in inheritance matters.

Supreme Court's Key Observations:

- There is no rationale in granting succession only to male heirs. Denying a woman or her heirs a share in the property simply because a custom allowing it hasn't been proven is both unjust and unconstitutional.
- **On Custom vs Constitution:** The Court acknowledged that while the Hindu Succession Act does not apply to Scheduled Tribes, this does not automatically exclude tribal women from inheriting property. In fact, customary law must yield to the Constitution if it perpetuates discrimination.
- **Burden of Proof:** A crucial part of the ruling involved the burden of proof. The Court criticized the lower courts for requiring women to prove that a custom allowed them to inherit. Instead, the Supreme Court clarified that it is for the opposing party to prove the existence of a custom that excludes women from succession.
- **Violation of Constitutional Rights:** The Court declared that denying inheritance to women violates Article 14 (Equality before the law) and Article 15(1) (Prohibition of discrimination on the basis of sex) of the Constitution. It also referred to Articles 38 and 46, which aim to promote justice and eliminate inequality.

Implications of the Ruling:

- **Strengthens Rights of Tribal Women:** This judgment empowers tribal women and

their heirs to claim their rightful share in ancestral property, even in the absence of codified succession law, provided there's no clear custom barring such claims.

- **Modernization of Customary Law:** The ruling signals that customs must evolve with constitutional values. It sets a precedent for courts to examine customary practices through the lens of justice, equity, and good conscience.
- **Shifting Legal Burdens:** The decision clarifies legal expectations: it is not women who must prove that they have rights under tribal law; rather, those opposing their claims must prove exclusionary customs.

Conclusion:

The Supreme Court's verdict is a significant stride toward gender equality, especially for women in tribal communities who have long remained outside the ambit of codified inheritance laws. It reaffirms that discrimination has no place in either law or custom and that constitutional principles must prevail, even where legislative silence or cultural tradition exists.

Supreme Court's Verdict on Secret Recordings in Marriage Disputes

Context:

The Supreme Court of India has made a significant ruling regarding secretly recorded conversations between spouses, stating that such recordings are admissible evidence in matrimonial disputes, including divorce proceedings.

About Spousal Privilege:

- Spousal privilege in India is governed by Section 122 of the Evidence Act, which protects private conversations between a husband and wife during their marriage. According to this section, neither spouse can be compelled to disclose confidential communications made during the marriage, unless the other spouse consents.

Key Aspects of Spousal Privilege:

- **Protection of Confidential Communications:** Spouses are protected from disclosing confidential communications made during the marriage.
- **Exceptions to the Rule:** Spousal privilege does not apply in cases where:
 - » **Both spouses are litigating against each other:** In suits between married persons, confidential communications can be disclosed.
 - » **One spouse is prosecuted for a crime committed against the other:** In such cases, confidential communications can be disclosed.
 - » **The other spouse consents:** If the spouse who made the communication consents, it can be disclosed.
 - » **A third party testifies:** If a third party has witnessed or heard the communication, it can be used as evidence.

Recent Supreme Court Ruling:

- The Supreme Court of India has recently ruled that secretly recorded conversations between spouses can be admissible as evidence in matrimonial disputes, including divorce proceedings.
- This decision overrides a previous High Court judgment that deemed such recordings a breach of privacy. The Supreme Court emphasized that while privacy exists between spouses, it's not absolute and must be balanced with the right to a fair trial.
- The Supreme Court's ruling relied on a 1973 judgment, which allowed a telephonic conversation recorded by the police to prove a bribery charge against a doctor.
- The court has now extended this reasoning to matrimonial cases, stating that if evidence is relevant, independently verifiable, and falls within statutory exceptions, it can be admitted even if collected in secret.
- The court emphasized that the right to privacy has to be balanced with the right to a fair trial.

Conclusion:

The Supreme Court's decision has significant

implications for matrimonial disputes. While it may provide a means for spouses to gather evidence in support of their claims, it also raises concerns about surveillance within marriage and the potential for misuse of secretly recorded conversations. Additionally, the ruling may affect women's right to a fair trial, given the existing gender gap in smartphone ownership and access to technology in India.

Resignation of Vice President

Context:

Vice President Jagdeep Dhankhar recently tendered his resignation to President Droupadi Murmu under Article 67(a) of the Indian Constitution, citing health concerns and medical advice. His resignation took effect with immediate effect.

Mechanism for Vice President's Resignation:

- The resignation of the Vice-President is governed by Article 67(a) of the Constitution, which allows the Vice-President to resign by submitting a written letter to the President of India. Upon acceptance, the office becomes vacant immediately.
- Unlike the President's post (which must be filled within 6 months under Article 62), the Constitution does not prescribe a fixed timeframe for filling a Vice-Presidential vacancy.
- However, the Election Commission is expected to conduct elections "as soon as possible", as per the Presidential and Vice-Presidential Elections Act, 1952. There is no provision for an acting Vice-President in the Constitution.
- However, since the Vice-President is the ex officio Chairman of the Rajya Sabha, this specific duty is taken over by the Deputy Chairman of the Rajya Sabha — currently Harivansh Narayan Singh — until a new Vice-President is elected.
- Other ceremonial or constitutional functions of the Vice-President remain in abeyance unless specifically provided for.

About Vice-President of India:

- Article 63 of the Constitution of India provides that there shall be a Vice-President of India. Articles 64 and 89 (1) provide that the Vice-President of India shall be ex-officio Chairman of the Council of States i.e., Rajya Sabha and shall not hold any other office of profit.
- The Vice-President of India is elected by an Electoral College comprising members of both the Lok Sabha and Rajya Sabha, including nominated members. Unlike the President's election, state legislatures do not participate in this election.

Vice President Resigns What does it mean?

- In a rare political development, the **Vice President of India has resigned** from office.
- His resignation was submitted to the **President of India**, as required under the Constitution.



Voting is conducted via:

- Proportional Representation using the Single Transferable Vote (STV) system.
- Secret ballot voting at the Parliament House, New Delhi.
- Each MP ranks candidates in order of preference. To win, a candidate must secure a quota calculated as:
 - » $(\text{Total valid votes} \div 2) + 1$
- Votes are transferred based on preferences if no candidate meets the quota in the first round.

Role and Importance of the Vice President of India:

- Constitutional Authority**
 - » **Second-Highest Authority:** The Vice President is the second-highest

constitutional authority in India, after the President.

- » **Ex-Officio Chairperson of Rajya Sabha:** The Vice President acts as the ex-officio Chairperson of the Rajya Sabha, ensuring the smooth conduct of proceedings in the Upper House.
- **Responsibilities**
 - » **Rajya Sabha Proceedings:** The Vice President ensures the smooth conduct of proceedings in the Rajya Sabha, maintaining order and decorum in the House.
 - » **Presidential Responsibilities:** In the event of the President's death, resignation, removal, or inability to perform duties, the Vice President temporarily assumes presidential responsibilities until a new President is elected.

Impeachment of High Court Judges in India

Context:

The process to remove Justice Yashwant Varma from office was recently set in motion, with members of the Lok Sabha and the Rajya Sabha submitting notices to the presiding officers of their respective Houses. The notices, signed by a significant number of members, mark the beginning of the impeachment process against the Allahabad High Court judge.

Impeachment of High Court Judges in India:

- High Court judges in India can be removed (impeached) for proven misbehaviour or incapacity. This process is governed by Article 217 read with Article 124(4) of the Constitution and the Judges (Inquiry) Act, 1968. The procedure is the same for both Supreme Court and High Court judges.

How is the impeachment process of a High Court judge initiated?

- A motion for removal must be signed by at least 100 Members of Parliament (MPs) in the Lok Sabha or 50 MPs in the Rajya

Sabha.

- The motion is submitted to the Speaker of Lok Sabha or Chairman of Rajya Sabha, who may admit it.
- Once admitted, a three-member inquiry committee is formed. It includes:
 - » A Supreme Court judge
 - » A Chief Justice of a High Court
 - » A distinguished jurist
- This committee investigates the charges and submits a report.

JUDGES ON TRIAL Impeachment Attempts in Indian History

Justice V. Ramaswami (1991–1993)



- Position: Supreme Court judge
- Allegations: Financial misconduct during his tenure as Chief Justice of the Punjab & Haryana High Court
- Outcome: Motion failed in the Lok Sabha after Congress MPs abstained from voting

Justice Soumitra Sen (2009–2011)



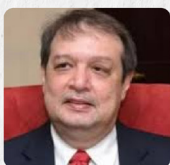
- Position: Calcutta High Court judge
- Allegations: Misappropriation of funds prior to his appointment as judge
- Outcome: Rajya Sabha passed the motion; Sen resigned before it reached the Lok Sabha

Justice P. D. Dinakaran (2009–2011)



- Position: Chief Justice of the Sikkim High Court
- Allegations: Land grabbing and corruption
- Outcome: Resigned before the impeachment process could proceed

Justice J. B. Pardiwala (2015)



- Position: Calcutta High Court judge
- Allegations: Misappropriation of funds prior to his appointment as judge
- Outcome: Rajya Sabha passed the motion; Sen resigned before it reached the Lok Sabha

- No judge in India has ever been successfully impeached.
- All past efforts were halted due to political compromises, procedural delays, or resignations.

When judge is found guilty by the inquiry committee?

- If the committee finds the judge not guilty, the process ends.
- If found guilty, the House where the motion was initiated can vote on it.
- The motion must be passed by:
 - » A majority of the total membership of the House, and
 - » A two-thirds majority of the members present and voting
- Once passed in one House, it goes to the other House for the same process.
- If both Houses pass the motion, an address is sent to the President of India, who then orders the removal of the judge.

History of Impeachment:

- No High Court judge has been successfully impeached yet, but Justice Soumitra Sen of the Calcutta High Court came close in 2011.
- He was accused of misappropriating funds when he was a court-appointed receiver (before becoming a judge).
- The Rajya Sabha passed the impeachment motion, but he resigned before the Lok Sabha could vote, ending the process.

Conclusion:

The impeachment process against Justice Varma has significant implications for the judiciary and the country. It ensures that High Court judges are held accountable for serious misconduct, but only after a fair, transparent, and rigorous process. This protects both the integrity of the judiciary and the rule of law.

The Bills of Lading Bill, 2025

Context:

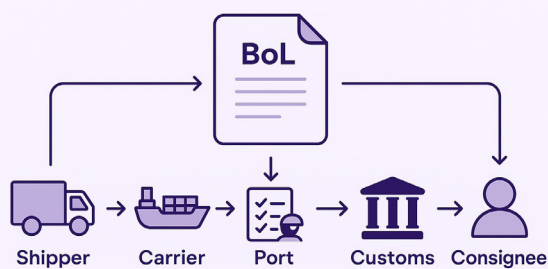
The Rajya Sabha recently passed The Bills of Lading Bill, 2025, marking a watershed moment for the maritime industry. The bill, which was already passed by the Lok Sabha, now awaits Presidential assent to become law. This new legislation will replace the 169-year-old colonial-era Indian Bills of Lading Act,

1856, with a modern, simplified, and globally aligned legal framework for maritime shipping documentation in India.

About the Bills of Lading Bill, 2025:

- The Bills of Lading Bill is a legal document used in international shipping, acting as proof that goods have been loaded onto a vessel and specifying the terms of transport.
- The new bill ensures a modern, transparent, and efficient framework for shipping transactions, streamlining rights and obligations for carriers, shippers, and lawful holders.

Why the Bill of Lading Is Critical



Key Features of the Bill:

- **Legal Modernization:** Replaces colonial-era provisions with a more structured and simplified framework.
- **Enhanced Business Efficiency:** Streamlines shipping documentation, reducing litigation risks and legal disputes by establishing clear guidelines for carriers, shippers, and consignees.
- **Alignment with Global Standards:** Adapts international best practices to boost India's role in global maritime trade.
- **Government Empowerment:** Allows the Central Government to issue directions for effective implementation and introduces a standard repeal and saving clause to maintain legal continuity.
- **User-Friendly Provisions:** Simplifies language and structure without altering the substantive principles of the original law.
- **Boost to Maritime Trade:** Strengthens India's position as a maritime hub, supporting ease of doing business.

Significance of the Bill:

- The bill reflects India's constitutional values and marks a vital step in replacing outdated colonial laws with a modern, accessible framework. By simplifying and streamlining shipping documentation, the bill aims to reduce ambiguity and litigation risks, promoting ease of understanding and enforcement. This, in turn, will enhance India's position in global trade, supporting the country's vision of becoming a developed nation by 2047.

Conclusion:

The Bills of Lading Bill, 2025, is a landmark legislation that will transform India's maritime sector. With its focus on modernization, efficiency, and global alignment, this bill is expected to boost India's maritime trade and strengthen its position as a global maritime hub.

Parliamentary Panel's Recommendations for NIRD&PR

Context:

A recent report by the Standing Committee on Rural Development and Panchayati Raj has recommended the "immediate review and replacement" of the current administration at the National Institute of Rural Development and Panchayati Raj (NIRD&PR).

- This thinktank under the Ministry of Rural Development is facing significant challenges after the Centre slashed its budgetary allocation to Rs 1 lakh for the financial year 2025-26 from Rs 73.68 crore in revised estimates for 2024-25.

Recommendations by the committee:

- To address these issues, the committee recommended:
 - » **Immediate Review and Replacement:** The current administration should be reviewed and replaced to ensure effective leadership and institutional stability.

- » **Constituting a Committee:** A committee should be constituted under the ministry's supervision to oversee administrative and governance matters.
- » **Strategic Collaboration:** The ministry should forge deeper strategic collaboration with NIRD&PR through structural reforms, decentralized decision-making, and adequate allocation of budgetary grant-in-aid.

NIRDPR factsheet

Established as National Institute of Community Development in 1958 in Mussoorie

■ Shifted to Hyderabad campus in 1965

■ Renamed as National Institute of Rural Development in 1977

■ Renamed as National Institute of Rural Development and Panchayati Raj with effect from December 4, 2013

■ Located on a 174.21-acre campus in Rajendranagar

Number of NIRDPR employees as on March 12, 2025 is **221**, against sanctioned strength of **640**

■ The Institute also has centres in Delhi, Guwahati, and Vaishali

What is NIRDPR

- NIRD&PR acts as a 'Think-Tank' for the MoRD and MoPR
- It is a repository of knowledge on Rural Development, Panchayati Raj and allied sectors
- It assists the government in policy formulation, development and implementation of national-level programmes/schemes through its various training and research activities

Broader issues in rural development ministry:

- This development is part of a larger narrative of challenges faced by rural development initiatives in India. The parliamentary panel has also raised concerns about:
 - » **Delays in MGNREGS Payments:** Persistent delays in wage payments under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) have caused significant financial distress among rural households.
 - » **Underutilization of Funds:** The rural development ministry has failed to fully utilize its allocated funds, with a

shortfall of 34.82% in actual expenditure compared to allocated funds.

- » **Poor Quality of Rural Roads:** The Pradhan Mantri Gram Sadak Yojana (PMGSY) has faced issues with poor-quality road construction, and the panel has recommended stronger measures to ensure quality control.

About NIRD&PR:

- The National Institute of Rural Development and Panchayati Raj (NIRD&PR) is an autonomous organization under the Ministry of Rural Development, Government of India.
- It's a premier institution focused on research, training, and consultancy in rural development and Panchayati Raj.
- NIRD&PR plays a crucial role in capacity building for various stakeholders involved in rural development, including government officials, elected representatives, NGOs, and others.
- Established in 1958, it was initially named the National Institute of Community Development (NICD), later renamed National Institute of Rural Development (NIRD) and eventually, in 2014, to its current name.

Conclusion:

Parliamentary panel's recommendations highlight the need for effective governance and institutional stability in rural development initiatives. The government must take these recommendations seriously and implement necessary reforms to ensure the success of these programs.

Regulating OTT Content in India

Context:

Responding to repeated public complaints and official reports, the Ministry of Information and Broadcasting recently took a significant step by ordering the blocking of 25 OTT platforms, along with associated websites and mobile applications.

Reasons for the Ban:

- The platforms were blocked for allegedly streaming content that:
 - » Was pornographic or sexually explicit in nature
 - » Featured long scenes of nudity without any meaningful storyline or context
 - » Depicted inappropriate sexual situations, including those within family settings
 - » Lacked any social message, narrative structure, or thematic justification
- The content was considered not only morally questionable but also potentially harmful, especially given its easy accessibility to young audiences.
- The decision was taken after inter-ministerial consultations involving:
 - » Ministry of Home Affairs
 - » Ministry of Women and Child Development
 - » Ministry of Electronics and IT
 - » Department of Legal Affairs
 - » Industry bodies like FICCI and CII
 - » Experts in women and child rights
- Complaints had also been raised by the National Commission for Protection of Child Rights, which highlighted the nature of content hosted on specific platforms.

Legal Provisions Used:

- **Information Technology Act, 2000**
 - » **Section 67:** Punishes the transmission of obscene material in electronic form
 - » **Section 67A:** Pertains to publishing or transmitting sexually explicit content
- **Indian Penal Code, Section 292:** Prohibits the sale, distribution, and circulation of obscene materials
- **Indecent Representation of Women (Prohibition) Act, 1986, Section 4:** Forbids depiction of women in indecent or derogatory ways in digital or print media
- The platforms were also found to be in violation of the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, which lay down a Code of Ethics for OTT and digital content

platforms.

The need for OTT Regulation:

- High Courts across India have, in the past, highlighted the need for stricter oversight of digital content. Their concerns include:
 - » The reach of electronic content to audiences of all ages, including children
 - » The lack of filtering mechanisms for age-inappropriate content
 - » Misuse of creative freedom to depict vulgarity without purpose
 - » The disconnect between such content and Indian societal values
- While artistic expression is protected under Article 19 of the Constitution, it is subject to reasonable restrictions. Many platforms are increasingly seen to be ignoring this balance.

Conclusion:

This recent enforcement has signaled that while creative freedom is respected, it cannot come at the cost of legal and ethical standards. OTT platforms must now take serious steps to align with India's regulatory framework, ensuring that content is not only entertaining but also responsible. Moving forward, stricter compliance with the IT Rules, content ratings, parental controls, and internal grievance redressal mechanisms will be key to avoiding similar punitive action. The focus is now on balancing innovation and freedom with public decency and lawful content dissemination.



International Relations

BRICS 2025: Emerging Unity, Strategic Challenges, and India's Role in a Multipolar World

Context:

The 17th BRICS Summit, held in Rio de Janeiro on 6–7 July 2025, marked an important moment for this group of emerging economies. This was the first summit attended by all the new members—Egypt, Ethiopia, the United Arab Emirates, Iran, and Indonesia—reflecting BRICS's ambition to expand its role in global affairs. The meeting took place against a backdrop of significant international tensions, including the U.S.-Israel attacks on Iran's nuclear facilities, the continued conflict in Gaza, and the recent India-Pakistan hostilities. These developments, along with the outcomes of the G-7 summit in Canada, underlined the deep divisions shaping the current global order.

❖ Although there were challenges, such as differences over United Nations reforms and criticism from the United States about BRICS's economic agenda, the Rio Declaration demonstrated a shared commitment to cooperation. With BRICS now representing almost half of the world's population, 40% of global GDP, and a significant share of world trade, India's upcoming leadership in 2026 will be crucial in guiding the group's efforts to promote a fairer and more inclusive international system.

Key Highlights of the Summit:

❖ **Trade and Economic Concerns:**

- » Before the summit, the US warned BRICS countries against taking steps to challenge the dollar. Although the final

declaration did not call for replacing the dollar, it criticised unilateral tariff and non-tariff measures that distort trade, hinting at recent US policies.

- » It also highlighted risks of protectionism disguised as environmental measures, referencing the European Union's proposed Carbon Border Adjustment Mechanism, which could hurt exports from developing economies.

❖ **Reform of Global Institutions:** A key theme was modernising international organisations:

- » BRICS called for updating the United Nations, World Bank, IMF, and WTO to better represent developing countries.
- » Notably, China and Russia expressed support for Brazil and India playing a larger role in the UN Security Council, although without formally endorsing their permanent membership.
- » The declaration urged restoration of the WTO dispute settlement system, which remains stalled.

❖ These positions reflect frustration with the slow pace of reform in institutions created after World War II.

❖ **Middle East and Palestine:** The summit issued strong statements on the situation in Gaza, likely influenced by new members from the Middle East. The declaration:

- » Voiced grave concern about Israeli military operations and the blockade of humanitarian aid.
- » Called for an immediate ceasefire and

withdrawal of Israeli forces.

- » Endorsed an independent Palestinian state combining the West Bank and Gaza.

❖ **Counterterrorism and India's Priorities:** For India, the summit produced a clear diplomatic gain. The declaration:

- » Condemned the terror attack in Jammu & Kashmir on April 22, 2025.
- » Reaffirmed commitment to fighting terrorism in all forms.
- » Highlighted cross-border movement of terrorists and terror financing, strengthening India's position in global forums such as the Financial Action Task Force (FATF).

❖ **G20 and Multipolarity:**

- » As the G20 faces challenges due to disagreements between the US and South Africa, BRICS leaders stressed that the G20 remains the main platform for global economic cooperation.
- » They also reaffirmed support for South Africa's G20 presidency, aligning with their broader vision of a multipolar world.

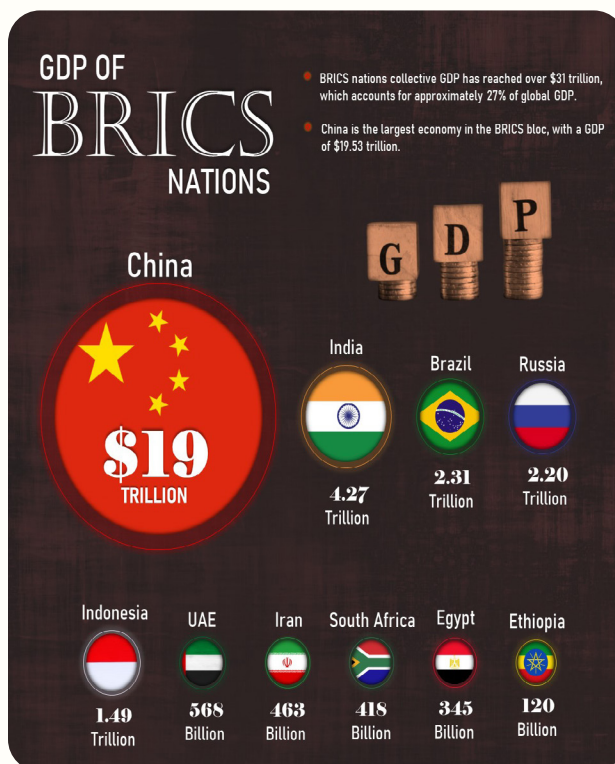
Other major Highlights of the Summit:

- ❖ **Climate Finance:** Adopted the Leaders' Framework Declaration on Climate Finance, calling for accessible and predictable funding to help developing countries achieve climate goals.
- ❖ **Artificial Intelligence Governance:** Released the Leaders' Statement on Global AI Governance, promoting responsible development and use of AI within national laws and in line with the UN Charter.
- ❖ **Health Cooperation:** Launched the Partnership for the Elimination of Socially Determined Diseases, aiming to reduce health disparities linked to poverty and exclusion.
- ❖ **Africa-Focused Solutions:** Supported "African solutions to African problems" in managing regional conflicts, including in Sudan and the Horn of Africa.
- ❖ **Nuclear Non-Proliferation:** Highlighted the contribution of nuclear-weapon-free zones

to global security.

- ❖ **Climate Diplomacy:** Supported India's proposal to host COP33 of the UNFCCC in 2028

The 2025 BRICS Summit in Rio de Janeiro marked a pivotal moment in the



evolution of this influential coalition of emerging economies. While the summit produced ambitious declarations on trade, climate, and institutional reform, it also underscored persistent contradictions that could limit the bloc's impact.

What is BRICS?

- ❖ The term BRIC was coined in 2001 by a British economist to describe the rising economies of Brazil, Russia, India, and China.
- ❖ BRIC formally took shape as a group at the G8 Outreach Summit in 2006 and held its first standalone summit in 2009. In 2010, South Africa joined, transforming BRIC into BRICS.
- ❖ **Membership has recently expanded further:**

- » In 2024, Iran, Egypt, Ethiopia, and the United Arab Emirates joined the group.
- » In 2025, Indonesia also became a member.
- » Saudi Arabia has yet to formalise its membership, while Argentina, initially expected to join, decided not to.

The Contradictions within BRICS:

- ❖ BRICS has always been an unusual coalition, grouping together countries with very different political systems, economies, and security interests. Its members range from liberal democracies like India and Brazil to authoritarian states like China and Russia. This diversity, while giving BRICS wide representation, also creates deep disagreements.
- ❖ **For example:**
 - » India and China have serious disputes over their border and strategic competition in Asia.
 - » Saudi Arabia and the UAE are deeply concerned about Iran's nuclear programme, even though Iran is now a BRICS member.
 - » Russia and China often push for an anti-Western narrative, which India and Brazil are less comfortable endorsing.
- ❖ These differences make it difficult for BRICS to speak with one voice. While the Rio Declaration offered strong statements about global governance reforms and the importance of cooperation, it had little to say about how members will handle their own conflicting interests.

The Impact of U.S. Policy Shifts:

- ❖ Ironically, while BRICS often talks about reducing American influence, it is the United States itself that is changing the international order most dramatically. Over the past year, the U.S. President has:
 - » Threatened to withdraw support from the World Trade Organization (WTO), weakening the system that regulates global trade.
 - » Sought major reforms in the World

Bank and International Monetary Fund, echoing demands that BRICS has made for years.

- » Imposed or threatened new tariffs on nearly all trading partners, including BRICS members.
- ❖ Rather than creating an opportunity for BRICS to present a united alternative, these developments have caused many BRICS countries to seek separate bilateral deals with the U.S. to protect their own economies.
 - » China negotiated a limited trade agreement with Washington.
 - » Vietnam, another state wary of American tariffs, signed its own trade deal.
 - » India has been engaged in months of negotiations with the U.S., hoping for a favourable trade agreement.
- ❖ This shows that even as BRICS talks about collective strength, its members continue to prioritise their national interests over group solidarity when faced with economic pressure.

Conclusion:

As India prepares to chair the BRICS summit in 2026, its diplomatic strategy will be critical. The challenge lies in converting the group's aspirations—on financial independence, sustainable development, and inclusive growth—into practical outcomes. India must also manage the group's internal contradictions while defending its own strategic autonomy. BRICS is not a bloc in the traditional sense—it is a platform. It is a space for alternative voices in global governance, particularly from the Global South. The 2025 summit showed that the group is willing to take bolder positions, but its long-term success will depend on cooperation, not confrontation. For India, BRICS represents both a strategic opportunity and a test of leadership. Its ability to harmonise its partnerships in both the developing and developed world will determine whether BRICS becomes a tool for equitable global transformation—or just another forum marked by symbolic declarations and missed potential.

Unlocking Trade Potential: The India–UK Free Trade Agreement

On July 24, 2025, India and the United Kingdom signed the Comprehensive Economic and Trade Agreement (CETA)—a landmark deal aimed at strengthening their economic partnership. This agreement comes after years of negotiations and marks one of India's most ambitious trade pacts with a developed country. CETA covers a wide range of sectors, including trade in goods and services, digital trade, investment, labour mobility, and innovation. It removes tariffs on nearly 99% of India's exports to the UK, offering major benefits for industries like agriculture, textiles, pharmaceuticals, electronics, marine products, and engineering goods. It also improves access for Indian professionals, simplifies visa rules, and supports women entrepreneurs and small businesses.

- ❖ The agreement is expected to boost exports, create jobs, attract investment, and help both countries work more closely in global value chains. It reflects India's shift towards more comprehensive and inclusive trade agreements that go beyond just tariffs.

Key Highlights of CETA:

❖ Tariff Elimination and Market Access

- » India will get duty-free access on 99% of its exports to the UK, including nearly 100% of trade value.
- » UK import duties—ranging up to 20% on key Indian exports—will be eliminated across a wide range of sectors.
- » Sectors like marine products, textiles, chemicals, base metals, and processed foods will benefit significantly.

Sector-wise Benefits:

❖ Agriculture and Processed Food

- » Duty-free access for fruits, vegetables, turmeric, pepper, cardamom, mango pulp, pickles, pulses, and ready-to-eat food.
- » Over 95% of agri and processed food

tariff lines will attract zero duty.

- » Expected 20% increase in agri exports over the next three years.
- » New opportunities for jackfruit, millets, and organic herbs.
- » No tariff concessions on sensitive products like dairy, apples, oats, and edible oils.
- » States like Maharashtra, Gujarat, Punjab, Haryana, Kerala, and the Northeast stand to benefit.

❖ Marine Sector

- » UK tariffs on shrimp, tuna, fishmeal, and feeds (previously 4.2–8.5%) to be eliminated.
- » India's share in the UK's USD 5.4 billion marine import market is currently just 2.25%—providing room for rapid growth.
- » Enhanced earnings for coastal fisherfolk through better price realisation.
- » Simplified Sanitary and Phytosanitary (SPS) standards reduce rejection risks.

❖ Plantation Sector

- » Duty-free access for tea, coffee, and spices.
- » Boost for instant coffee exports, allowing competition with European exporters like Germany and Spain.

❖ Textiles and Clothing

- » Tariffs eliminated on 1,143 product lines.
- » India's current exports to UK are USD 1.79 billion, despite global exports of USD 36.71 billion.
- » Sectors like RMG (ready-made garments), home textiles, carpets, and handicrafts to benefit.
- » Expected 5% increase in UK market share within 1–2 years.

❖ Engineering and Auto Components

- » Tariffs (previously up to 18%) to be removed on engineering goods.
- » India's exports may double to USD 7.5

India-UK Bilateral Trade

Trade size
₹4.6 lakh crore (2024)


How much India
Exported?
2.75
lakh crore


How much
UK Exported?
1.85
lakh crore

UK has trade deficit of ₹90,700 crore.

What India Exports to UK?



Chemicals



**Readymade
Garments**



Auto Parts



Toys



Marine Products



**Gems and
Jewellery**

What UK Exports to India?



Whisky



Gin



**Medical
Devices**



Cosmetics



Mutton



Salmon



Biscuits

Trade continued to
grow 10–12% annually
even after Brexit

UK's share in
India's total trade
is 2%.

Between 2000 & 2022, India received
₹3.44 lakh crore FDI from the UK.

In 2023,
Indian investments
in UK
grew 28%



India's export
target to UK
₹108 lakh crore
by 2030

billion by 2030.

- » Growth in products like electric machinery, auto parts, construction equipment, etc.

❖ **Electronics and Software**

- » Duty-free access for smartphones, inverters, optical fibre cables.
- » Software and IT-enabled services expected to grow by 15–20% annually from a base of USD 32 billion in 2024–25.

❖ **Pharmaceuticals and Medical Devices**

- » UK tariffs eliminated on generics and medical devices.
- » Exports of surgical tools, diagnostic equipment, ECG and X-Ray machines to become more competitive.

- » India's current pharma exports to UK are under USD 1 billion, with major growth potential.

❖ **Chemicals and Plastics**

- » Expected 30–40% increase in chemical exports to the UK.
- » Plastics exports to grow by 15%, with a target of USD 186.97 million by 2030.
- » Products include films, pipes, packaging, kitchenware.

❖ **Gems, Jewellery and Leather**

- » **Current G&J exports to UK:** USD 941 million; FTA expected to double exports within 2–3 years.
- » UK jewellery imports stand at USD 3 billion, offering vast market potential.
- » Leather and footwear tariffs reduced from 16% to zero.

» MSMEs in hubs like Agra, Kanpur, Kolhapur, and Chennai to benefit.

❖ **Sports Goods and Toys**

» Duty-free access for soccer balls, cricket gear, rugby balls, non-electronic toys.
 » Improved competitiveness against suppliers from China and Vietnam.

❖ **Liberalisation of Services and Mobility**

» Greater access for IT, legal, financial, educational, and professional services.
 » Simplified visa categories for:
 » Contractual Service Suppliers
 » Independent Professionals like yoga teachers, chefs, musicians
 » Double Contribution Convention: Indian professionals and employers exempt from UK social security payments for up to 3 years.

Other Important Aspects:

❖ **Opening India's Government**

Procurement: For the first time (outside the UAE), India has opened parts of its government procurement market to foreign participation. UK companies will be treated as Class 2 suppliers, provided at least 20% of their product value originates in the UK.

❖ This move could lead to:

» Enhanced competition and procurement efficiency
 » Improved technology and service standards
 » However, it also raises concerns about its potential impact on the Make in India initiative

❖ A calibrated approach is essential—sensitive sectors must be protected while ensuring transparent participation.

❖ **Progressive Inclusion:** This FTA includes India's first dedicated chapter on gender, reflecting a more inclusive trade policy. The focus is on:

» Supporting women entrepreneurs
 » Enhancing their participation in global value chains
 » Promoting gender-responsive trade policies

❖ This opens the door for joint data collection and policymaking aimed at improving

women's economic participation in bilateral trade. Implementation will be key to ensuring meaningful outcomes.

About Carbon Border Adjustment Mechanism (CBAM)

❖ One important gap in the agreement is the lack of provisions to address CBAM, especially as the EU begins applying carbon tariffs on imports. This may expose Indian exports of carbon-intensive goods like steel and aluminium to extra levies, potentially eroding some of the tariff benefits granted under the FTA.

❖ A forward-looking strategy would include:

» Technology-sharing arrangements
 » Support for carbon-neutral manufacturing
 » Green transition financing mechanisms

What Are Free Trade Agreements (FTAs)?

❖ Free Trade Agreements are arrangements between two or more countries to reduce or eliminate tariffs and non-tariff barriers on substantial trade volumes. They may cover:

» Trade in goods and services
 » Investment rules
 » Intellectual property
 » Digital economy, labour mobility, and standards

❖ FTAs are an exception to the WTO's Most Favoured Nation principle and can begin with an Early Harvest Scheme, which targets a limited set of products/services before a full FTA is signed.

India and Free Trade Agreements:

❖ India has signed 13 FTAs in the last five years, including with Mauritius, UAE, and Australia.

❖ However, trade outcomes have been mixed.

» Exports to FTA partners rose 31%, but imports surged 82% (2017–2022).
 » FTA utilisation rate in India remains low—just 25%, compared to 70–80% in developed nations.
 » Non-tariff barriers, certification rules, and unfair competition from partner countries have been key hurdles.

- ❖ Despite these challenges, FTAs can still deliver value through technology transfer, investment flows, and integration into global value chains, especially if structured carefully.

Conclusion:

The India–UK FTA represents a significant shift in India's trade policy. It goes beyond tariff reduction to include deeper cooperation on investment, sustainability, gender, and worker mobility. It also indicates India's willingness

to engage with complex global trade norms and adopt a more balanced, development-oriented approach. However, the success of this agreement will depend on its implementation, legal clarity, and the institutional structures created to monitor progress. With transparent processes and timely reviews, this agreement could serve as a template for India's future FTAs, blending economic pragmatism with progressive values.

Short Issues

The Order of the Republic of Trinidad and Tobago

Context:

Prime Minister Narendra Modi has been conferred with 'The Order of the Republic of Trinidad and Tobago', the highest national award of Trinidad and Tobago, by President Christine Kangaloo at the President's House in Port of Spain. This honor marks a significant milestone in the diplomatic relations between India and Trinidad and Tobago.

Key Highlights of PM Modi's Visit:

- **Strengthening Bilateral Ties:** PM Modi reaffirmed his commitment to deepening the partnership between India and Trinidad and Tobago, emphasizing their shared history and cultural heritage.
- **Overseas Citizen of India (OCI) Card:** The sixth generation of Indian-origin citizens living in Trinidad and Tobago will now be eligible for OCI cards, allowing them to live, work, and invest in India without special visas.
- **UPI Adoption:** PM Modi congratulated Trinidad and Tobago on adopting India's Unified Payments Interface (UPI), making it the first country in the Caribbean region to do so.
- **Cultural and Economic Ties:** The Prime

Minister highlighted the importance of infusing new energy into cultural and economic ties between India and the overseas Indian community.

India–Trinidad and Tobago Relations:

- **Historical Ties:** Relations trace back to 1845, when the first Indian indentured laborers arrived in Trinidad and Tobago. This migration laid the foundation for a strong cultural and social connection, with people of Indian origin now comprising a significant portion of the population.
- **Diplomatic Relations:** Formal diplomatic relations were established in 1962, the same year Trinidad and Tobago gained independence. India opened a High Commission in Port of Spain to strengthen bilateral ties.
- **Cultural Connections:** Cultural bonds remain strong. Indian festivals like Diwali, Holi, and Ramlila are celebrated widely across Trinidad and Tobago, reflecting the vibrant Indian diaspora's influence.
- **Economic Cooperation:** India exports a range of products including pharmaceuticals, rice, and auto parts to Trinidad and Tobago. The countries also cooperate in international platforms such as the United Nations, Commonwealth, and Non-Aligned Movement (NAM).

Conclusion:

This visit and the prestigious award serve as a powerful symbol of the enduring friendship and growing partnership between India and Trinidad and Tobago—a bond built on shared history, mutual respect, and a common vision for the future.

Indian Prime Minister's Visit to Ghana and India-Ghana Relations

Context:

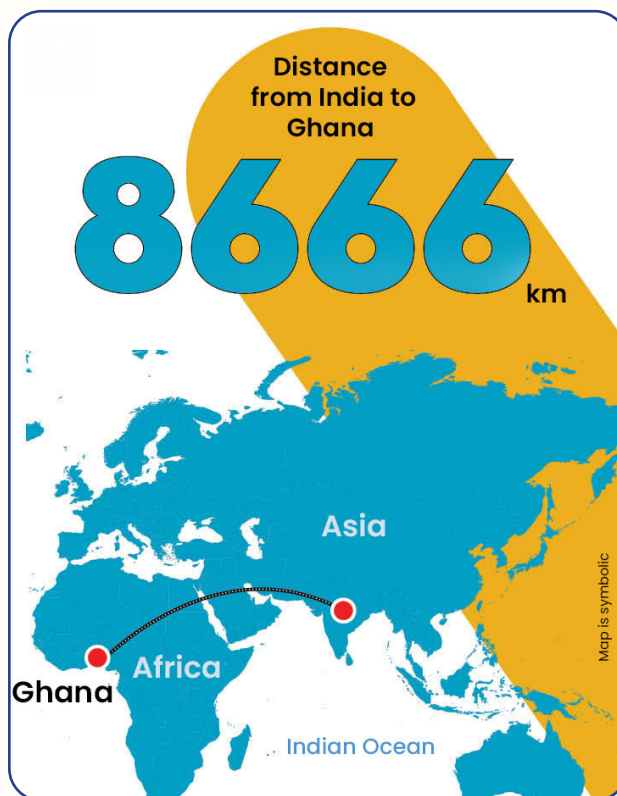
The recent visit of Indian Prime Minister Shri Narendra Modi to Ghana is being seen as a decisive turning point in India-Africa relations. This visit was part of his eight-day diplomatic tour of five countries and marks a significant transformation in India's Africa policy. It is also notable as the first visit by an Indian Prime Minister to Ghana in 30 years. During the visit, Prime Minister Modi was conferred with Ghana's highest civilian honour—The Officer of the Order of the Star of Ghana—by President John Mahama.

Key Achievements and Areas of Cooperation:

- **Expansion of Bilateral Trade:** India and Ghana have set a target to double their bilateral trade from \$3 billion to \$6 billion over the next five years. This reflects the economic complementarity between the two nations. While Ghana is rich in natural resources like gold, cocoa, and petroleum, India is a major exporter of pharmaceuticals, textiles, machinery, and other industrial goods. The realization of this goal will depend on modernization of trade logistics and removal of barriers.
- **Defence Cooperation and Strategic Partnership:** Ghana has shown interest in procuring Indian defence equipment and training services, indicating increasing trust between the two nations. Indian cooperation will help Ghana address security challenges such as piracy in the Gulf of Guinea and terrorism in the Sahel region. This reflects

India's approach to defence cooperation—based on mutual respect for sovereignty—which distinguishes it from many Western defence partnerships.

- **Cooperation in Health and Agriculture:** India has pledged support to help Ghana establish itself as a vaccine manufacturing hub, a move of particular significance in the post-COVID global public health context. As the "Pharmacy of the World," India's technical expertise can be immensely beneficial to Ghana. In agriculture, India's sharing of technologies in irrigation, storage, and value addition can strengthen food security and rural employment in Ghana.



- **Important Bilateral Agreements (MoUs):** During the visit, four significant Memoranda of Understanding were signed:
 - » Cultural Exchange Programme
 - » Cooperation in Standardization and Certification
 - » Collaboration in Traditional Medicine Systems

» Establishment of a Joint Commission

- These agreements institutionalize the India-Ghana partnership and ensure that cooperation is systematic, sustainable, and long-term.
- **Maritime Security and Counter-Terrorism Strategies:** The Gulf of Guinea is now considered a global hotspot for maritime piracy. India's naval capabilities can enhance Ghana's maritime security, benefiting both countries' trade interests in West Africa. Additionally, India's counter-terrorism strategies, surveillance systems, and intelligence-sharing capabilities can help Ghana address the growing threat of extremism in the Sahel region.

India's New Approach to Africa Policy:

- This visit signals a strategic shift in India's traditional Africa policy. India is no longer limiting its role to development assistance but is now actively investing in defence, technology, and infrastructure sectors. Unlike China's debt-based model, India's approach is based on mutual benefit and respect—focusing on partnership rather than dependency.

Key Challenges:

- While the visit sends a positive message for the future, the major challenge lies in effective implementation. The trade targets can only be realized through improvements in logistics infrastructure, banking systems, and administrative efficiency. Defence cooperation must continue to prioritize Ghana's sovereignty. Although India's support for Ghana's BRICS membership is crucial, the consensus-based nature of the group means support from other members—especially China and Russia—is also essential.

Conclusion:

Prime Minister Modi's visit has elevated India-Ghana relations to the level of a "Comprehensive Partnership." This is not just a diplomatic gesture but a reflection of India's multidimensional, participatory, and strategic

engagement with Africa. If the commitments made during this visit are implemented effectively, the India-Ghana relationship can emerge as a model for South-South cooperation—centered around mutual respect, inclusivity, and shared development. India is no longer merely a provider of development assistance; it is evolving as a strategic partner investing in defence, technology, and infrastructure.

India-Brazil Relation

Context:

The recent visit of Prime Minister Narendra Modi to Brazil has marked a significant milestone in the strengthening of bilateral ties between India and Brazil. A total of six agreements were signed covering areas such as security, digital infrastructure, renewable energy, agriculture and intellectual property.

The key takeaways from the visit are:

- **Defence and Security:**
 - » The two leaders welcomed growing military collaboration, including joint exercises and senior-level visits. They signed Agreement on the Exchange and Mutual Protection of Classified Information and established a Bilateral Cybersecurity Dialogue to share expertise on cyber threats.
 - » Both countries condemned terrorism and agreed to deepen action against UN-designated groups such as Lashkar-e-Tayyiba and Jaish-e-Mohammad.
- **Food and Nutritional Security:**
 - » As leading agricultural producers, India and Brazil agreed to advance sustainable farming, fair trade, and public stockholding for food security. They reaffirmed the goal of eradicating hunger by 2030 and pledged support for the Global Alliance Against Hunger and Poverty.
 - » Joint research on crop productivity, animal genetics, and biotechnology will be encouraged through collaboration between national R&D bodies.

Energy Transition and Climate Action:

- The leaders underscored strong collaboration on bioenergy and biofuels, reaffirming their commitment to the Global Biofuels Alliance and exploring sustainable aviation fuel. Both sides agreed to step up collaboration on climate finance, sustainable development, and a stronger, fairer international financial system.

Digital Cooperation and Emerging Tech:

- Acknowledging the transformative potential of digital public infrastructure, artificial intelligence, and quantum technologies, the two countries signed an MoU to deepen cooperation. India and Brazil pledged to work together on global digital governance and boost direct ties between their innovation ecosystems.

Industrial Partnerships:

- Both leaders noted growing bilateral investment flows and agreed to streamline visa processes to boost business and tourism. They invited closer ties in pharmaceuticals, aviation, defence equipment, mining, and oil and gas, including carbon capture technologies. A ministerial Commerce and Trade Review Mechanism will oversee the implementation of the 2020 Bilateral Investment Cooperation and Facilitation Treaty and the 2022 Double Taxation Protocol.
- The two countries have set a target to almost double their bilateral trade to \$20 billion over the next five years. They have also agreed to streamline visa processes to boost business and tourism.

Conclusion:

The new strategic roadmap between India and Brazil is a significant step towards strengthening bilateral ties between the two countries. With a shared vision of advancing peace, prosperity, and sustainable development, India and Brazil are poised to take their strategic partnership to new heights.

India-Namibia Relations

Context:

Prime Minister Narendra Modi's visit to Namibia marks a significant milestone in the relations between the two countries. As the first Indian Prime Minister visiting Namibia in almost three decades, Modi's trip is expected to strengthen cooperation in technology, health, infrastructure, development, and security.

About India-Namibia Relations:

- India and Namibia share a colonial past and a post-colonial partnership. India was one of the first countries to raise the question of Namibia's independence in the United Nations General Assembly in 1946.
- The South West Africa People's Organisation (SWAPO), which led Namibia's liberation struggle, established its first embassy in New Delhi in 1986.
- India provided material assistance and military training to Namibian fighters, and after independence in 1990, the Indian Observer Mission was upgraded to a High Commission.

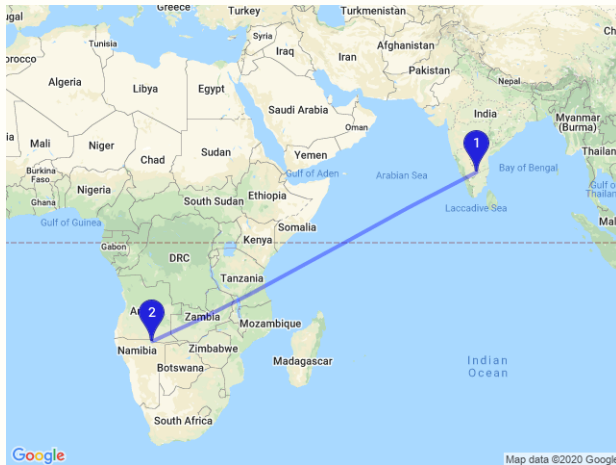
Why Namibia is Significant for India:

- Namibia is a significant player in the African continent, and India has important stakes in the region. India hopes to deepen ties of trade, development, and security and energy cooperation with Africa.
- Namibia offers great potential for a mutually beneficial energy security and critical minerals partnership.
- The country is the third-largest producer of uranium in the world and one of the largest producers of lithium, zinc, and rare earth metals.

Economic and Commercial Ties:

- India-Namibia economic and commercial ties have grown stronger in recent years. Two-way trade touched \$654 million between April and November 2023, registering a 178% growth.
- India's exports were at \$418 million, and imports from Namibia at \$235 million.

India's investments in Namibia are in the order of \$800 million, mostly in mineral resources such as zinc and diamond processing.



Capacity Building and Development Assistance:

- India has been providing capacity-building and development assistance to Namibia through various programs.
- An 'India Wing' has been established at the University of Namibia's Ongwediwa campus through a grant of about \$12 million by India.
- India has also provided training to Namibian defence personnel, diplomats, public health officials, and cricketers under the Indian Technical and Economic Cooperation (ITEC) program.

Cheetah Diplomacy:

- India and Namibia have also collaborated on a unique initiative - the translocation of cheetahs from Namibia to India. In 2022, eight cheetahs were flown from Namibia to India, marking the world's first intercontinental translocation of a major carnivore species.

India's Engagement with Africa:

- India's engagement with Africa is driven by a humanitarian and expansive view of its relationship with the continent. Unlike China's strategic and economic-driven approach, India prioritizes the needs and

aspirations of African countries. India has invested \$76 billion in Africa since 1996 and aims to increase this investment to \$150 billion by 2030.

Conclusion:

PM Modi's visit to Namibia is a significant step in strengthening ties and cooperation between the two countries. The visit is expected to enhance bilateral relations and explore new areas of mutual interest. With its focus on technology, health, infrastructure, development, and security, the visit is likely to have a positive impact on the relationship between India and Namibia.

India at the BRICS Summit 2025

Context:

India participated in the BRICS Summit held in Brazil from 6 to 8 July 2025. This was the first official visit of an Indian Prime Minister to Brazil in nearly 60 years. In this summit, BRICS expanded by joining six new countries like Egypt, Ethiopia, Iran, Indonesia, Saudi Arabia and United Arab Emirates. This expansion has increased BRICS' share of the global population and economy, making the group a powerful platform for the Global South.

Key Highlights:

- BRICS Leaders' Declaration:** The declaration adopted at the summit reflected India's priorities:
 - » Strong condemnation of cross-border terrorism.
 - » A call for urgent reforms in global governance institutions to make them more representative.
- Call for Multilateral Reforms:** India stressed that the majority of the world's population lacks adequate representation in key global bodies. It urged BRICS to act as a unified voice demanding reforms, including restructuring the United Nations Security Council.



- **Four Key Proposals by India:** India put forward four main suggestions to strengthen BRICS cooperation:
 - » **Improving Systems and Credibility:** Emphasised demand-driven decision-making, financial sustainability, and maintaining a robust credit rating for BRICS initiatives.
 - » **Collaborative Research:** Proposed creating a BRICS Science and Research Repository to benefit member countries and the wider Global South.
 - » **Resilient Supply Chains:** Called for securing and diversifying supply chains for critical minerals and technology to reduce dependence and ensure stability.
 - » **Responsible Artificial Intelligence:** Advocated the development of AI as a tool to enhance human capabilities, guided by the principle of “AI for All.”
- **Bilateral Engagements:** India held meetings with leaders of Bolivia and Uruguay to explore cooperation in trade, energy, defence, space, agriculture, and technology.

BRICS as a Platform:

- BRICS began as BRIC (Brazil, Russia, India, China) in 2006, later including South Africa.

Annual summits have been held since 2009. The group works across three pillars:

- » Political and security cooperation.
- » Economic and financial collaboration.
- » Cultural and people-to-people exchanges.

Growing Relevance:

- With new members, BRICS now represents nearly half of the global population.
- The group includes major oil producers, enhancing its energy influence.
- Expansion may balance the influence of any one country and provide opportunities for coalitions to promote fair agendas.

India-Brazil Relations:

- Brazil is India's largest trading partner in South America. Bilateral trade reached \$12.2 billion in 2024–25. Historical links date back to the Portuguese colonial era, with cultural and economic exchanges shaping ties. Modern cooperation spans IT, pharmaceuticals, agriculture, and energy.

Conclusion:

The 2025 BRICS Summit strengthened India's role as a voice for the Global South and showcased its commitment to reforming global institutions. With an expanded membership, BRICS will play a more influential role in global governance, offering India new opportunities to advance strategic and economic interests in a multipolar world.

The Dalai Lama's Reincarnation

Context:

The 14th Dalai Lama, Tenzin Gyatso, turns 90 on 6 July 2025. This birthday is not only an occasion of personal but also historic importance for the Tibetan people and the followers of Tibetan Buddhism. On this occasion he expressed his desire to live more than 130 years and to be reborn after death.

About Dalai Lama:

- The Dalai Lama, revered as the spiritual leader of Tibetan Buddhism, has lived in

exile in India since 1959, after the Chinese military crushed a Tibetan uprising. He escaped Tibet and eventually settled in Dharamshala, Himachal Pradesh, where the Tibetan government-in-exile was formed. In 2011, he voluntarily gave up his political authority, ending a tradition of combining spiritual and temporal leadership that lasted 368 years.

The Tradition of Reincarnation:

- The Dalai Lama is believed to be the reincarnation of Avalokiteshvara, the Bodhisattva of compassion. The concept of tulku in Tibetan Buddhism guides this process: when a Dalai Lama dies, he is reincarnated to carry on his spiritual mission.
- The first Dalai Lama, Gedun Drupa, was born in 1391. By the time of the fifth Dalai Lama, Lobsang Gyatso, in the 17th century, the position also took on political authority.
- The current Dalai Lama was discovered in 1939 as the reincarnation of the 13th Dalai Lama through a traditional search involving visions and spiritual signs.
- Since 1969, the Dalai Lama has publicly said that whether or not his reincarnation should continue is a decision for Tibetans, Mongolians, and Himalayan Buddhists.
- In a statement in 2011, he declared that at age 90 he would consult senior lamas, the Tibetan public, and other stakeholders to decide if the institution of the Dalai Lama should continue.

The China Factor:

- China views the Dalai Lama as a separatist and does not accept his authority. Beijing has repeatedly said that the reincarnation process must be conducted under Chinese law.
- In 2007, China decreed that no individual or group can search for or identify a reincarnated lama without state approval, institutionalising the Golden Urn method to control the selection.
- The Dalai Lama has firmly opposed this interference. In 2011, he said his

reincarnation must be found in a “free country, not under Chinese control,” and warned that any candidate chosen by China would not be legitimate.

- He repeated this view in his 2025 book, *Voice for the Voiceless*, stating his successor would be born outside China.
- Many Tibetans fear that after the Dalai Lama’s passing, China will appoint its own successor to strengthen its hold over Tibet and its religious institutions.

Conclusion:

The Dalai Lama’s upcoming statement is likely to define the future of Tibetan Buddhism and its leadership. It will also have geopolitical implications, as China and the Tibetan diaspora continue to dispute who has the right to choose the next spiritual leader. This moment will be watched closely worldwide because it not only concerns the preservation of Tibetan culture and religion but also touches upon broader themes of self-determination, religious freedom, and China’s policies towards minorities. The coming decision will shape the identity and unity of Tibetan people for generations to come.

FATF Report on State-Sponsored Terrorism

Context:

The Financial Action Task Force (FATF), the international apex anti-terror financing watchdog, has taken a significant step by including a separate section on state-sponsored terrorism in its report. This development reinforces India's position on Pakistan's role in terror financing, which India has been highlighting since 2022.

Key Findings of the FATF Report:

- **State-sponsored terrorism:** The report notes that certain terrorist organizations have received financial and other forms of support from national governments, which is a longstanding threat to international peace and security.
- **Funding patterns of LeT and JeM:** The

report highlights the funding patterns of Pakistan-based Lashkar-e-Taiba (LeT) and Jaish-e-Mohammed (JeM), which are designated as terrorist organizations by the United Nations.

Implications for India:

- The FATF report's findings have significant implications for India, particularly in the context of its relations with Pakistan. The report's acknowledgment of state-sponsored terrorism and the funding patterns of LeT and JeM reinforces India's position on Pakistan's role in terror financing.

India's Efforts to Highlight Pakistan's Role in Terror Financing:

- India has been consistently highlighting Pakistan's role in terror financing, and the FATF report's findings are a significant boost to India's position.
- In 2022, India identified state-sponsored terrorism from Pakistan as a source of terrorist financing risk in its money laundering and terrorist financing risk assessment.

Definition of Terrorism:

- Terrorism is generally defined as the use of violence or intimidation to achieve political, ideological, or social goals. The UN has struggled to define terrorism, but it has acknowledged that it involves acts intended to cause death or serious bodily injury to a civilian, or to any other person not taking an active part in the hostilities in a situation of armed conflict, when the purpose of such act, by its nature or context, is to intimidate a population, or to compel a government or an international organization to do or to abstain from doing any act.

About Financial Action Task Force (FATF):

- The Financial Action Task Force (FATF) is an intergovernmental organization founded in 1989 to combat money laundering and terrorist financing. It develops and promotes policies to protect the global financial system from these threats. FATF monitors its members' progress in implementing

these policies and assesses countries' efforts to combat money laundering and terrorist financing.

▪ **FATF's Role:**

- » **Setting Standards:** Develops global AML/CFT standards through its FATF Recommendations covering due diligence, suspicious transaction reporting, and cooperation.
- » **Monitoring Compliance:** Conducts mutual evaluations to assess how effectively countries implement these standards.
- » **Listing Non-Compliant Jurisdictions:** Publishes blacklist (high-risk) and greylist (under monitoring) to push reforms in weak AML/CFT regimes.
- » **Supporting Implementation:** Provides technical assistance, training, and guidance to help countries improve their systems.
- » **Global Cooperation:** Partners with bodies like the UN, IMF, and World Bank to enhance international collaboration and information sharing.
- » **Adapting to New Threats:** Updates standards to address emerging risks like virtual assets, crowdfunding, and evolving terrorist financing trends.

Conclusion:

The FATF report's inclusion of a separate section on state-sponsored terrorism is a significant development that reinforces India's position on Pakistan's role in terror financing. The report's findings highlight the need for international cooperation to address the threat of state-sponsored terrorism and the importance of holding countries accountable for their role in supporting terrorist organizations.

India's Foreign Policy in 2024

Context:

The Ministry of External Affairs (MEA) recently released its annual report for 2024. The report highlighted India's key diplomatic engagements and achievements. According to the report,

India's foreign policy demonstrated "vibrancy and pragmatism" in advancing national interests amid a rapidly evolving global landscape.

Key highlights of the Report:

- The year 2024 witnessed multiple global challenges, including economic fluctuations, climate impacts, and conflicts.
- India continued its efforts to champion reforms of global governance institutions and address the concerns of developing nations, often referred to as the Global South.
- The approach was described as "vibrant and pragmatic," aiming to advance national interests while strengthening India's global standing.

Bilateral and Multilateral Participation

- India actively engaged in forums such as the UN, G20, G7, Quad, SCO, and BRICS.
- Under the G20 Troika (India, Brazil, South Africa), India contributed to priorities such as social inclusion, energy transition, and reform of multilateral institutions.
- The inclusion of the African Union as a permanent G20 member was a significant milestone following India's 2023 G20 Presidency.

Voice of Global South Summit:

- India hosted the 3rd edition of the Voice of Global South Summit virtually.
- 173 dignitaries from 123 countries participated.
- A proposal for a "Global Development Compact" was made to promote trade, technology sharing, capacity building, and financial support among Global South nations.

Outreach at Global Summits:

- India participated in the G7 Summit Outreach Session in Italy.
- Discussions focused on technology governance, digital transformation, and inclusive development.
- Emphasis was placed on using technology with a human-centric approach and promoting artificial intelligence for collective

progress.

Combating Terrorism and Financial Crimes:

- India strengthened cooperation with partner countries to counter terrorism in all forms.
- Participation in Counterterrorism Working Groups was enhanced with countries like France, Kazakhstan, Australia, and the Quad partners.
- The FATF Mutual Evaluation concluded that India had reached a high level of compliance in anti-money laundering, counter-terror financing, and counter-proliferation financing.

Humanitarian Assistance and Disaster Relief (HADR):

India continued to reinforce its role as a reliable first responder in humanitarian crises:

- **Operation Indravati:** Evacuation of Indian nationals from Haiti amid civil unrest.
- **Humanitarian Airlift in Kuwait:** Repatriation of mortal remains of 45 deceased nationals.
- **Operation Sadbhav:** Emergency assistance to Myanmar after floods from Typhoon Yagi.
- Over 20 countries received humanitarian aid from India during the year.
- India supplied anti-cancer medicines to Syria and coordinated with UN agencies to deliver humanitarian supplies to Palestine.
- A joint rescue operation with Omani authorities saved nine crew members from a vessel that capsized off Oman.

Conclusion:

In 2024, India's foreign policy focused on balancing national interests with global responsibilities. From multilateral leadership to humanitarian outreach, India strengthened its position as a proactive and responsible global actor. The Ministry of External Affairs report highlights a year of steady diplomatic achievements and a commitment to shaping a more equitable international order.

**India-Saudi Arabia
 Cooperation in Fertilizers and
 Health Sectors**

Context

Recently, a high-level Indian delegation visited Saudi Arabia to strengthen cooperation in fertilizers, chemicals, health, and pharmaceuticals. India and Saudi Arabia have deepened their strategic and economic partnership over the past decade, especially in energy, investment, and trade. Fertilizers are a critical component of India's agricultural security, as the country depends significantly on imports to meet domestic demand.

Key Agreements in Fertilizer Supply:

- During the three-day visit held in Dammam and Riyadh from July 11–13, several important agreements were finalized:
 - » Long-term agreements were signed between Saudi Arabia's Maaden company and Indian firms including Indian Potash Limited (IPL), KRIBHCO, and CIL.
 - » These agreements will ensure the supply of 3.1 million metric tons of Diammonium Phosphate (DAP) fertilizer per year starting in FY 2025–26.
 - » The agreements are valid for five years, with a provision to extend them for another five years based on mutual consent.
- This represents a substantial increase compared to earlier supplies:
 - » In 2023–24, India imported 1.6 million metric tons of DAP fertilizer from Saudi Arabia.
 - » In 2024–25, imports increased to 1.9 million metric tons, showing a 17% growth over the previous year.
 - » The new agreement nearly doubles current imports, enhancing India's fertilizer security.
- Both sides also agreed to expand cooperation to include other fertilizers such as Urea, which is equally important for Indian agriculture.

Investment and Research Collaboration:

- Both nations agreed to explore mutual investments, including Indian public sector investments in Saudi Arabia's fertilizer

sector and Saudi investments in India.

- A joint team has been set up to work on long-term cooperation. This team will be led by the Secretary of Fertilizers on the Indian side and the Vice Minister for Mining Affairs on the Saudi side.
- Focus areas include developing India-specific customized fertilizers and promoting research on alternative fertilizers to improve sustainability and productivity.

Strengthening Economic Partnership:

- During the visit, the delegation met with senior Saudi officials responsible for industry and energy. Discussions centered on:
 - » Broadening the scope of economic ties under the Strategic Partnership Council.
 - » Facilitating investments in other sectors such as mining and chemicals.
 - » Promoting initiatives to strengthen the fertilizer supply chain between the two countries.
- Saudi Arabia is a major supplier of fertilizers to India, with Maaden being the leading company in this segment.

Cooperation in Health and Pharmaceuticals:

- The Indian delegation met with Saudi health officials to discuss cooperation in medical services, pharmaceuticals, digital health solutions, and knowledge exchange.
- The discussions built upon a bilateral Memorandum of Understanding on Health, signed during a recent state visit by India's Prime Minister.
- Both countries emphasized the importance of leveraging technology to improve health systems.

Conclusion:

The successful visit marks an important milestone in strengthening India-Saudi Arabia relations. The long-term fertilizer agreements will significantly improve India's fertilizer supply stability, essential for ensuring food security and supporting farmers. Additionally, cooperation in health, pharmaceuticals, and digital solutions will create new opportunities

for knowledge sharing and innovation. This deepening partnership is expected to contribute to broader economic growth and strategic cooperation between the two nations in the coming years.

Thailand-Cambodia Conflict

Context:

On July 24, violent clashes took place along the Thailand-Cambodia border, which was the most serious escalation over a decade between two countries. Thereafter, with efforts of ASEAN and US, Cambodia and Thailand have agreed to an "immediate and unconditional ceasefire".

About Centre of the Dispute:

- At the core of the standoff are two ancient Hindu temple complexes: Preah Vihear and Ta Muen Thom. Both are architectural relics of the Khmer Empire, a once-mighty Southeast Asian kingdom that flourished from the 9th to 15th centuries and left a sprawling legacy of temples, most famously Angkor Wat.
 - » Preah Vihear, a 900-year-old temple dedicated to Lord Shiva, sits atop a 525-metre cliff in Cambodia's Dangrek Mountains, directly on the Cambodia-Thailand border.
 - » Ta Muen Thom, another 12th-century Shiva shrine, lies about 95 km west, in Thailand's Surin Province, part of a cluster of temples built on a traditional trade and pilgrimage route.

History of the dispute:

- The roots of this conflict lie in colonial cartography. Between 1904 and 1907, French surveyors—acting under the colonial protectorate of French Indochina—drew border maps between French-controlled Cambodia and Thailand (then Siam).
- A 1907 French map placed the Preah Vihear temple within Cambodia, even though it was geographically closer to Thailand.
- The map was accepted at the time by Siamese authorities, who believed it followed

the natural watershed line. But decades later, Thailand contested the map's validity, claiming it was misled.

- In 1962, the International Court of Justice (ICJ) ruled in Cambodia's favour, citing Thailand's earlier acceptance of the map. The ruling mandated Thai withdrawal and return of temple artefacts.
- However, ambiguities remained over the surrounding land, which became the next flashpoint.
- In 2013, after renewed fighting in 2011, the ICJ clarified its ruling, confirming that Cambodia holds sovereignty over both the temple and its immediate vicinity, and instructed Thailand to withdraw all forces.



Implications:

- The conflict between Thailand and Cambodia highlights the complexities of colonial-era borders and the challenges of resolving territorial disputes.
- Southeast Asian historians have long noted that boundaries, particularly those drawn by Western powers, were alien to regional politics.
- The French-made maps based on European cartography gave Cambodia a distinct "geo-

body," with Preah Vihear located just inside its borders.

Conclusion:

The conflict between Thailand and Cambodia over the Hindu temples is a complex issue that requires a nuanced understanding of the historical and cultural context. The dispute has been on-going for over half a century, and a lasting resolution will require diplomatic efforts and a willingness to compromise. The international community must play a role in promoting peace and stability in the region, and encouraging both countries to find a peaceful solution to the conflict.

China's \$170 Billion Dam near Arunachal Pradesh

Context:

China has recently started work on a massive \$170 billion hydropower project on the Yarlung Zangbo River, which flows into India as the Brahmaputra. Beijing presents this project as a major step for economic growth and clean energy. However, India sees it as a cause for serious concern, both in terms of strategic security and environmental impact, making it a new flashpoint in regional geopolitics.

About the project:

- The project, set to be China's largest infrastructure effort since the Three Gorges Dam, is located just before the river enters Arunachal Pradesh, which China claims as "South Tibet." This adds a clear geopolitical angle to the issue. Beyond territorial concerns, the dam has raised fears about flood risks, ecological damage, and China's strategic control over water resources.

Key features:

- Five cascade dams to be constructed in series
- Planned capacity of 60 GW — nearly three times larger than the Three Gorges Dam
- Construction and operation to be handled by the newly formed China Yajiang Group

Co. Ltd

- What remains unclear is the extent of water storage involved. This ambiguity is central to India's fears.

India's Concerns:

- **Flood Risk: "Water Bomb" Scenario:** Sudden water release from the Chinese dam could devastate the Siang region, the Indian name for the river in Arunachal. This raises concerns about plausible "water weaponization", either as:
 - » A deliberate release during military or diplomatic tension
 - » Or an accidental outburst, with little or no warning
- **Ecological Fragility:** The Siang Valley is home to diverse tribal communities like the Adi people, and is ecologically rich. Large water surges or drying up of flows can affect:
 - » Agriculture
 - » Fisheries
 - » Biodiversity
 - » Livelihoods of indigenous communities
- **Hydropower Competition:** The Northeast accounts for nearly half of India's untapped 133 GW hydropower potential—much of it downstream from China's project. Disruption in water flow could:
 - » Undermine India's own hydro projects
 - » Affect power generation planning
 - » Deter private investment in the region

India's Planned Response:

To counter China's strategic head-start, India has proposed the Upper Siang Multipurpose Project, a massive 11.2 GW dam in Arunachal Pradesh.

- **Strategic goals:**
 - » Regulate river flow and absorb shocks from sudden water release
 - » Store excess water during floods and release it during dry spells
 - » Serve as India's largest hydropower project once completed
- **Current Status:**
 - » Pre-feasibility studies were ordered in 2022
 - » NHPC Ltd is the implementing agency

- » Progress has been slow, mainly due to local resistance and ecological concerns

Conclusion:

China's new dam near Arunachal is not just a hydropower project. It is a reminder of the urgency India faces in defending its river systems and people. India's response must be multi-dimensional—balancing speed with sustainability, diplomacy with deterrence, and strategic foresight with environmental care. As water becomes the next frontier of geopolitics, New Delhi cannot afford to fall behind upstream.

Russia formally recognised Taliban government

Context:

Russia's Ambassador to Kabul Dmitry Zhirnov recently conveyed to Taliban Acting Foreign Minister Mawlawi Amir Khan Muttaqi that Moscow had decided to formally recognise the Taliban as the legitimate government of Afghanistan. Soon after, the International Criminal Court (ICC), based in The Hague, issued arrest warrants for two senior Taliban figures on charges of gender-based persecution.

Historical Background

- **Strategic Rivalry over Afghanistan**
 - » During the 19th century, Afghanistan was a buffer state in the "Great Game" between the British Empire and Tsarist Russia.
 - » In 1919, Afghanistan moved toward independence, repelling British influence after the Third Anglo-Afghan War.
 - » Lenin's Soviet Union, post-1917, extended ideological and territorial overtures, supporting Afghanistan's independence.
- **Soviet Engagement (1978–1989)**
 - » A socialist government came to power in Afghanistan in 1978, aligned with the USSR.
 - » The 1979 Soviet invasion, justified under the Brezhnev Doctrine, triggered

a decade long conflict.

- » The war ended in 1989, leaving massive casualties: about 20,000 Soviet soldiers and 1.5 million Afghans.

- **Post-Soviet Russia's Role**

- » In the wake of 9/11, Russia supported the global campaign against terrorism, partly to counter insurgent threats to its own territories.
- » Despite tension with the Taliban during the 1990s, Moscow remained diplomatically engaged post-2021.
- » Since 2017, a multi-party diplomatic forum—later known as the Moscow Format—has included key regional actors aiming to foster stability through dialogue.

Recent Developments:

- **Diplomatic Recognition**
 - » The recognition followed Russia's Supreme Court's decision earlier in 2025 to remove the Taliban from its terrorist list.
 - » This formal acceptance allows the two countries to expand cooperation in sectors like trade, energy, and security.
- **Economic Cooperation**
 - » In 2022, Russia signed preliminary deals to supply Afghanistan with fuel and wheat at discounted rates.
 - » Bilateral trade doubled in 2024, estimated at around USD 1 billion, with projections of USD 3 billion in 2025.
 - » Russia has opened doors for Afghan workers on its labour market and is exploring infrastructure and technology partnerships.
- **Legal and Ethical Implications**
 - » The ICC's arrest warrants highlight serious international concerns, especially regarding the treatment of women and minorities.
 - » This introduces a stark contrast between diplomatic recognition and international accountability efforts.

Regional and Global Reactions

- China had previously deepened ties

with Afghanistan by appointing its own ambassador in 2023.

- Other major regional actors—Pakistan, UAE, Turkey, and Azerbaijan—have also engaged diplomatically.
- India, though not formally recognised by Afghanistan, continues developmental support and maintains its technical presence, notably in education, infrastructure, and health sectors.



Implications for India and Beyond

- **Diplomatic Balance:** India must now evaluate whether increased engagement with the Taliban regime is prudent—balancing geopolitical interests with values such as human rights and regional stability.
- **Strategic Connectivity:** Afghanistan remains central to India’s “Connect Central Asia” initiative. Recognition by Russia and others may open new avenues for trade, transit, and regional connectivity.
- **Humanitarian Outreach:** Expanding educational and medical visa offerings could reinforce India’s long-term goodwill and share development gains with Afghan youth and women.

Conclusion:

Russia’s recognition of the Taliban government marks a turning point in Afghanistan’s diplomatic reintegration, presenting both opportunities—such as economic cooperation and regional connectivity—and challenges, notably aligning diplomatic engagement with global norms and human rights obligations. For key regional players, including India, the task is finding a strategic equilibrium that secures national interests while supporting stability and humanitarian progress in Afghanistan.

Henley Passport Index 2025

Context:

According to the 2025 Henley Passport Index, India’s passport has improved significantly, climbing eight places to reach the 77th rank, up from 85th in 2024. This rise comes despite only a marginal increase in the number of visa-free or visa-on-arrival destinations — from 57 to 59.

What Is the Henley Passport Index?

- The Henley Passport Index is a globally recognised ranking that measures the strength of a country’s passport based on the number of destinations its holders can access without needing a prior visa. These include visa-free, visa-on-arrival, or electronic travel authorisation (e-visa)

access.

- » **Published by:** Henley & Partners, a global citizenship and residence advisory firm
- » **Data Source:** International Air Transport Association (IATA), supplemented with in-house research
- » **Coverage:** Evaluates access to 227 destinations worldwide
- The index is widely used to assess the travel freedom, diplomatic relationships, and international standing of countries. A higher ranking reflects greater global mobility and stronger bilateral visa agreements.

India's Passport Performance in 2025:

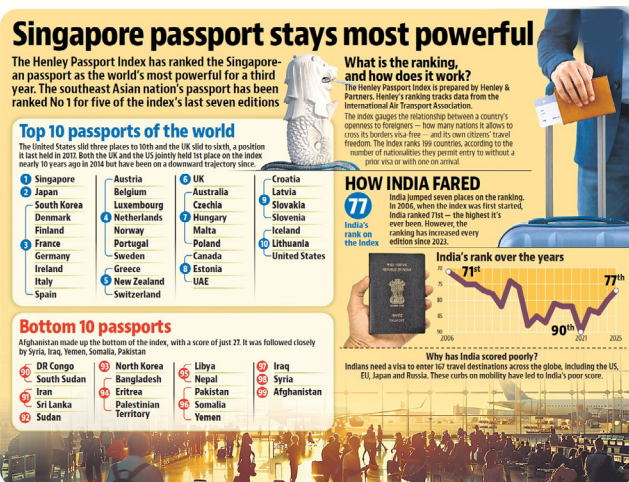
- India's passport has risen eight spots in the 2025 Henley Passport Index, moving from 85th to 77th place. This improvement comes with a modest increase in visa-free or visa-on-arrival access, now available in 59 countries, up from 57 last year.
- New additions include Philippines and Sri Lanka. Indian citizens now enjoy visa-free entry to countries like Malaysia, Bhutan, Indonesia, and Thailand, and visa-on-arrival or e-visa access in places such as Sri Lanka, Myanmar, Macao, and the Maldives.
- Historically, India ranked highest at 71st in 2006 and lowest at 90th in 2021. The recent rise reflects stronger bilateral ties, a growing global economic footprint, and wider adoption of digital visa systems.

Global Trends in 2025 Passport Rankings:

- The 2025 rankings highlight notable shifts in global mobility patterns. Asian and European countries dominate the top spots, while some traditional powers have declined in relative strength.
- **Top Performers:**
 - » **1st:** Singapore — visa-free access to 193 destinations
 - » **2nd:** Japan and South Korea — access to 190 destinations each
 - » **3rd:** Shared by several European countries — France, Germany, Italy — with access to 189 destinations
- **Major Climbers:**
 - » **UAE:** Rose from 42nd to 8th over the last decade
 - » **China:** Improved from 94th to 60th since 2015
 - » **Saudi Arabia:** Now allows travel to 91 destinations, an increase of 4 in 2025
- **Declining Passport Powers:**
 - » **USA:** Dropped to 10th place
 - » **UK:** Fell to 6th place, down from 5th in 2024
- **Lowest Ranked:**
 - » **Afghanistan:** Remains at the bottom, with visa-free access to just 25 destinations.

Conclusion:

India's enhanced standing reflects progress in areas like digital visa systems and economic engagement. Although still behind top-performing passports, India's direction is positive. Expanding diplomatic ties, negotiating reciprocal travel agreements, and modernising consular services will be crucial in continuing this upward momentum. For Indian travellers — whether students, professionals, or tourists — this trend brings increased opportunities and greater mobility across the globe.



Prime Minister's visit to Maldives

Context:

Prime Minister Narendra Modi recently visited

the Maldives on July 25-26, 2025, at the invitation of President Dr. Mohamed Muizzu. This visit marked a significant diplomatic gesture, especially considering the recent tensions between the two nations. The visit celebrated two key milestones: the 60th Independence Day of the Maldives and the 60th anniversary of the establishment of diplomatic relations between India and the Maldives.

Background:

- India and Maldives have traditionally shared close ethnic, linguistic, cultural, religious, and commercial ties. India was among the first countries to recognize the Maldives after its independence in 1965 and established diplomatic relations shortly thereafter.
- Despite this, bilateral relations witnessed turbulence in 2023, following the election of President Muizzu, whose initial approach signaled a pivot away from India. However, subsequent visits, including Muizzu's visit to India in 2024 and Modi's 2025 visit to Malé, have led to a significant reset in bilateral engagement.

Key Outcomes of the 2025 Visit:

- **Strengthening Development Cooperation:**
 - » **Line of Credit (LoC):** India extended a fresh LoC worth Rs. 4,850 crore (approximately \$565 million) for infrastructure and priority development projects in the Maldives.
 - » **Debt Relief:** An amendatory agreement was signed reducing the Maldives' annual debt repayment obligation from \$51 million to \$29 million on an earlier Indian LoC.
- **Trade and Economic Integration:**
 - » **Free Trade Agreement (FTA):** Terms of Reference (ToR) were finalized to begin negotiations on an India-Maldives FTA.
- **Digital and Financial Inclusion:**
 - » **UPI Integration:** A network-to-network agreement between NPCI International and the Maldives Monetary Authority was signed to enable the rollout of India's Unified Payments Interface (UPI)

in the Maldives.

- **Sectoral Cooperation:** MoUs were signed in key areas such as:
 - » Fisheries and aquaculture
 - » Meteorology and climate change (between IITM and Maldivian Meteorological Services)
 - » Digital governance and population-scale digital solutions
 - » Recognition of Indian Pharmacopoeia for drug standards
- **People-to-People Connectivity and Public Diplomacy:** Inauguration of:
 - » 3,300 social housing units in Hulhumale
 - » Road and drainage systems in Addu City
 - » 72 heavy vehicles to the Maldivian Defence Ministry
 - » Six High-Impact Community Development Projects (HICDPs)

Strategic and Geopolitical Implications:

- Maldives occupies a critical position in the Indian Ocean Region (IOR), sitting astride key Sea Lines of Communication (SLOCs). The strengthening of India-Maldives ties is essential to counterbalance Chinese strategic influence under the guise of economic investments and the Belt and Road Initiative (BRI).
- PM Modi's presence as Guest of Honour at Maldives' Independence Day reflects India's commitment to the "Neighbourhood First" and Security and Growth for All in the Region (SAGAR) doctrines.
- India's model of development assistance — based on transparency, demand-driven projects, and capacity-building — offers a sustainable alternative to debt-based models of foreign engagement.

Conclusion:

PM Modi's 2025 visit produced tangible outcomes in trade, infrastructure, digital integration, and cultural diplomacy. It signifies India's evolving regional leadership, based on partnership, mutual respect, and shared prosperity in the Indian Ocean.



Environment & Ecology



From Energy Efficiency to Energy Reliability: India's Green Energy Revolution

India has achieved a key clean energy milestone five years ahead of schedule. As of June 30, 2025, non-fossil fuel sources account for 50.1% of the country's installed electricity capacity. This development marks a major step forward in India's climate journey and reflects the country's strong push towards clean energy. When the Paris Agreement was signed in 2015, India had pledged to achieve 40% installed capacity from non-fossil fuel sources by 2030. In 2022, this target was revised upward to 50% by 2030. Achieving this target in 2025 signals accelerated progress, especially in solar and wind energy deployment.

Current Status of Installed Power Capacity in India

- ❖ In 2015, thermal sources contributed nearly 70% of installed capacity. As of June 2025, India's total installed power capacity stood at 485 gigawatts (GW). Of this:
 - » **Renewables (solar, wind, small hydro, biogas):** 185 GW
 - » **Large Hydro:** 49 GW
 - » **Nuclear Energy:** 9 GW
 - » **Total Non-Fossil Fuel Capacity:** 243 GW (50.1%)
 - » **Thermal (coal, gas):** 242 GW (49.9%).

Global Standing in Renewables:

- ❖ By 2024, India ranked fourth globally in total renewable installed capacity (including large hydro), behind:

- » China
- » United States
- » Brazil

Rapid Renewable Growth and Grid Challenges:

- ❖ Between April 2020 and June 2025, India added 95 GW of solar and wind capacity. These sources now account for 35% (168 GW) of installed electricity capacity.
- ❖ However, the growth of renewables has outpaced storage development, causing grid instability. On May 30, 2024, India's peak demand of 250 GW was hard to meet due to:
 - » Low renewable generation
 - » Inadequate thermal backup
 - » No substantial storage capacity
- ❖ Similarly, zero solar prices were recorded in May 2025 during periods of low demand and high generation, highlighting the mismatch and inefficiencies in power dispatch.

Energy Storage:

- ❖ Storage systems allow excess solar/wind energy to be stored and used during low generation or peak demand. As of 2024:
 - » Pumped Hydro Storage: 4.75 GW
 - » Battery Storage: 110 MW
 - » Total Storage Capacity: <5 GW

Key Enablers and Constraints in Utilising Clean Energy

- ❖ India's baseload power demand—electricity needed continuously throughout the day—is still met predominantly by coal, which

contributes around 75% of actual electricity generation.

- ❖ Solar power helps reduce coal demand during daylight hours, especially in summer, but this benefit disappears after sunset. Without adequate storage, clean energy sources are unable to serve as reliable baseload power.

❖ **Grid Flexibility and Battery Storage**

- » Current grid infrastructure lacks the flexibility to absorb large volumes of variable renewable energy.
- » Battery storage is underdeveloped. As of 2024, India had:
 - 4.75 GW of pumped hydro storage
 - Just 110 MW of operational battery storage
- » Without storage, solar energy produced during the day is often underutilised, especially when demand is low.

❖ **Uniform Tariffs and Market Inefficiency**

- » Electricity pricing in India is largely flat, regardless of time of day. Experts suggest the need for time-of-day pricing:
 - Encourage higher consumption during periods of high solar generation (e.g., afternoon)
 - Reduce stress on the grid during peak hours (e.g., evening)
- » However, this requires smart metering, differential tariff structures, and grid modernisation—which are currently at early stages.

❖ **Understanding Capacity Utilisation Factor (CUF)**

- » One of the main reasons for the gap between installed capacity and generation lies in the Capacity Utilisation Factor (CUF):
 - Solar energy CUF: ~20%
 - Wind energy CUF: ~25–30%
 - Coal energy CUF: ~60%
 - Nuclear energy CUF: ~80%
- » This means that even with similar or higher installed capacity, solar and wind power generate less electricity over time compared to coal or nuclear power, which can operate continuously.

❖ **Transmission and Grid Infrastructure Bottlenecks**

- » The Inter-State Transmission System (ISTS) waiver for solar and wind projects expired on June 30, 2025. While it earlier allowed developers to set up projects in high-irradiation states (like Gujarat and Rajasthan) without paying transmission charges, it also led to:
 - Project clustering in a few regions
 - Transmission congestion during peak demand
 - Long-distance power transfers, increasing inefficiency
- » Now, with the waiver gone, developers may build projects closer to demand centres, easing pressure on transmission lines and improving grid stability.

UNION BUDGET 2025 LIKELY TO PUSH ONGOING FLAGSHIP GREEN ENERGY SCHEMES:

PM Surya Ghar:
 Muft Bijli Yojana
 Allocation in FY25:
 Rs **6,250** crore

Green Energy
Corridor
 Allocation in FY25:
 Rs **600** crore

PM-KUSUM
 Allocation in FY25:
 Rs **1,496** crore

Solar Power-Grid
 (Renewable Energy Parks)
 Allocation in FY25:
 Rs **8,500** crore

National Green
Hydrogen Mission
 Allocation in FY25:
 Rs **600** crore



Policy Push for Storage:

- » **Co-located storage mandate:** The Central Electricity Authority advised that future solar projects include co-located storage.
- » **Viability Gap Funding (VGF):** Battery storage supported with 30 GWh (in addition to 13 GWh already in progress), with Rs 5,400 crore in support.
- » **Pumped Hydro Targets:** 51 GW expected by 2032

- » Transmission Charge Waiver for storage extended till June 2028
- ❖ Despite these moves, project execution remains slow due to:
 - » High upfront costs
 - » Import duties
 - » Domestic content requirements
 - » Global supply chain dependence (especially on China)

Rooftop Solar Push:

- ❖ **The 'PM Surya Ghar: Muft Bijli Yojana'** aims to promote residential rooftop solar installations, decentralising energy generation and reducing pressure on the central grid.
 - » Current rooftop capacity: 19 GW
 - » Added under scheme till March: 3 GW
 - » Target by March 2027: 27 GW additional capacity
- ❖ Rooftop solar can help reduce transmission congestion, enhance local reliability, and contribute to clean energy goals.

Way Forward:

- ❖ **Strengthen Grid Flexibility and Invest in Storage**
 - » Co-locating storage with solar/wind projects should be mainstreamed in tendering.
 - » The government's expansion of the Viability Gap Funding (VGF) scheme to support battery storage is a positive step, but faster implementation is needed.
 - » Promote development of pumped hydro storage, with 51 GW targeted by 2032.
- ❖ **Promote Hybrid Energy Projects**
 - » Encourage hybrid tenders (solar + wind + storage) to smooth out supply fluctuations.
 - » Provide support for land pooling, storage subsidies, and better transmission planning to scale such projects.
- ❖ **Decentralise Generation via Rooftop Solar**
 - » The PM Surya Ghar Yojana can help reduce transmission losses and improve reliability through localised generation.
 - » Targeting 27 GW of rooftop solar by

2027 is ambitious but necessary for easing pressure on the grid.

❖ **Introduce Time-of-Day Pricing**

- » Differential tariffs can:
 - Encourage daytime consumption of solar power
 - Disincentivise peak-time usage when thermal plants bear the load
- » Smart meters and dynamic pricing policies are essential to make this viable.

❖ **Resolve Pending PPAs and Regulatory Delays**

- » States must be nudged to finalise PPAs for stranded projects.
- » Fast-track clearances and approvals to avoid delays in commissioning.

❖ **Boost Domestic Manufacturing of Storage Tech**

- » Incentivise domestic production of battery components under schemes like PLI (Production Linked Incentive).
- » Reduce import dependence, especially amid rising global competition for rare earth elements and battery materials.

Conclusion:

India's clean energy journey is at a critical juncture. Achieving 50% installed capacity from non-fossil fuel sources is a landmark, but the next big goal is to translate capacity into dependable, round-the-clock electricity supply. This will require a paradigm shift—from building capacity to building smart, flexible, and resilient infrastructure that supports sustainable and equitable energy growth. With bold reforms and focused execution, India can deliver on its promise of 70% round-the-clock clean energy by 2030—at lower cost, and with greater climate resilience.

Glacial Hazards in the Himalayas: Assessing GLOF Risks and National Preparedness

Context:

On July 8, 2025, a devastating Glacial Lake Outburst Flood (GLOF) occurred in Nepal, triggered by the bursting of a supra-glacial lake in Tibet. The resulting flash flood surged through the Lende River, which flows from Tibet into Nepal, washing away a China-built friendship bridge near the Rasuwagadhi inland container port. This port, vital to Nepal's trade infrastructure, was significantly disrupted. Additionally, four hydro-power plants on the Bhote Koshi River were rendered inoperative, wiping out about 8% of Nepal's electricity supply.

- ❖ This event wasn't isolated. Later that same day, another GLOF occurred in the Mustang district in northern Nepal. Just two months earlier, similar events were reported in Humla district, and in 2024, a GLOF in Solukhumbu district destroyed Thame village, a key base for Everest climbers. These frequent and intense events underline the increasing threat posed by glacial lake outbursts across the Himalayan region.

Understanding GLOFs and Glacial Lakes:

- ❖ A Glacial Lake Outburst Flood (GLOF) is a sudden, catastrophic release of water from a glacial lake. These lakes are formed when meltwater from glaciers accumulates in natural basins, often dammed by moraine (unconsolidated debris) or ice.
- ❖ **Main Characteristics of GLOFs**
 - » Sudden and sometimes cyclic water releases.
 - » Rapid onset: usually lasts for a few hours to a couple of days.
 - » Leads to intense downstream flooding.
- ❖ **Types of Glacial Lakes (based on formation)**
 - » Moraine-dammed (most common and high-risk)
 - » Ice-dammed

» Erosion lakes

Other categories:

- ❖ These include lakes formed under various conditions, such as supraglacial lakes (on the surface of a glacier), proglacial lakes (in front of a glacier), and subglacial lakes (beneath a glacier).
- ❖ In addition to these, there are some specific types of glacial lakes, such as:
 - » **Cirque Lakes:** These are crescent-shaped lakes that form in bowl-shaped depressions carved by glaciers.
 - » **Paternoster Lakes:** These are a series of small lakes arranged in a chain, forming one after another along a glacial valley.
 - » **Fjord Lakes:** These are narrow, deep lakes formed in glacial valleys that extend into the sea.
 - » **Kettle Lakes:** These lakes form in depressions left behind by the melting of large blocks of ice.

Triggers of GLOFs:

- ❖ Glacial surging: rapid glacier movement.
- ❖ Moraine dam instability due to loose debris or melting ice cores.
- ❖ Ice dam failure due to thermal stress or water pressure.
- ❖ Seismic activity in tectonically active zones.
- ❖ Human activity such as unplanned construction, deforestation, mining, and hydropower projects.

Historic and Recent Examples of GLOFs:

- ❖ **2023:** GLOF at South Lhonak Lake, Sikkim, destroyed the Teesta III dam at Chungthang, worth \$2 billion with 1,250 MW capacity. Downstream silting raised the Teesta riverbed, reducing its capacity and increasing flood risk.
- ❖ **2013:** GLOF in Chorabari lake in Uttarakhand combined with a cloudburst to cause the Kedarnath catastrophe, resulting

in hundreds of casualties.

- ❖ **1981:** GLOF from Cirenma Co in Tibet raised the Bhote Koshi River level by 30 metres.
- ❖ **1985:** GLOF from Digi Tsho.
- ❖ **1998:** GLOF from Tama Pokhari.

GLOF Risks in the Indian Himalayan Region (IHR):

- ❖ India's Himalayan region is increasingly vulnerable due to climate change, inaccessible terrain, and the absence of monitoring infrastructure.
- ❖ **Key Facts:**
 - » The IHR includes 11 major river basins and about 28,000 glacial lakes.
 - » Over 7,500 lakes are in India, mostly located above 4,500 metres — difficult to access and monitor.
 - » Only satellite imagery (remote sensing) is available to track changes in lake size, which is post-facto and not predictive.
- ❖ **Types of Lakes Found in the IHR**
 - » **Supraglacial lakes:** formed on glaciers and highly prone to melting in summer.
 - » **Moraine-dammed lakes:** formed at glacier snouts, dammed by unstable debris — highly susceptible to sudden failures.

Evidence of Growing Risk:

- ❖ A 2024 report by the Central Water Commission (CWC) found a 33.7% increase in the surface area of glacial lakes in India between 2011 and 2024. When including transboundary regions like Bhutan, Nepal, and China, the total increase was 10.81%.
- ❖ 67 glacial lakes in India showed more than 40% increase in surface area, placing them in the high-risk category.
- ❖ Major expansions were observed in:
 - » Ladakh
 - » Himachal Pradesh
 - » Uttarakhand
 - » Sikkim
 - » Arunachal Pradesh
- ❖ This alarming growth is attributed to rising global temperatures—2023 and 2024 were the hottest years recorded, leading to more meltwater accumulation and increasing

GLOF risks.

Challenges in Managing GLOFs:

- ❖ Terrain inaccessibility limits field surveys.
- ❖ Short operational window in summers due to snow and altitude.
- ❖ Almost no weather or water monitoring stations in glacial regions.
- ❖ Lack of early warning systems (EWS) and poor inter-governmental communication.
- ❖ Climate vulnerability: the Himalayas lie in Seismic Zones IV & V, increasing risks of earthquake-triggered GLOFs.
- ❖ Transboundary gaps: For instance, Nepalese officials have pointed out the absence of an alert system with China, despite upstream GLOFs affecting Nepal directly.



India's Response and Mitigation Strategy:

- ❖ India, through its National Disaster Management Authority (NDMA), has shifted focus from post-disaster response to proactive risk reduction.
- ❖ **Key Initiatives:**
 - » Launch of a \$20 million national programme targeting 195 high-risk glacial lakes, up from an initial list of 56.
- ❖ **Five-fold strategy:**
 - » Hazard assessment of at-risk lakes.
 - » Installation of AWWs (Automated Weather and Water Stations).
 - » Deployment of EWS (Early Warning Systems) downstream.
 - » Risk mitigation by water drawdown or building flow-through structures.
 - » Community engagement for awareness and local participation.

Technological Innovations:

- ❖ Use of Synthetic Aperture Radar (SAR) interferometry for detecting slope instabilities (up to a centimetre precision).
- ❖ Electrical Resistivity Tomography (ERT) to locate ice cores under moraine dams.
- ❖ UAVs for aerial surveys and slope mapping.
- ❖ Real-time monitoring systems in Sikkim, sending updates every 10 minutes including images and water/weather data.

Field Expedition Insights:

- ❖ In 2024, multiple expeditions were launched in Jammu & Kashmir, Ladakh, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh.
 - » Successful use of bathymetry to measure water volume.
 - » Integration of community cooperation was essential—some teams adapted to local customs (e.g., not disturbing sacred lakes) and used local knowledge for navigation.
 - » Manual early warning roles assigned to ITBP forces in the absence of automated systems.

National and Global Frameworks:

❖ **India's Policies**

- » NDMA's GLOF Management Guidelines under implementation.
- » Mandatory GLOF risk studies for new dams with upstream glacial lakes.
- » Design flood reviews for existing/under-construction dams by CWC.
- » Status mapping of glacial lakes under National Mission on Himalayan Studies (NMHS) by NIH, Roorkee.

❖ **Global Collaborations**

- » **ICIMOD's HKH Cryosphere Initiative:** regional glacial lake monitoring.
- » **Global Climate Observing System:** supports EWS development via remote sensing.
- » **UNESCO:** focuses on sustainable development and tourism in fragile mountain ecosystems.
- » **Sendai Framework:** promotes cross-border disaster risk cooperation.

Conclusion:

The frequency and intensity of GLOFs are escalating across the Himalayas due to rapid glacial melt, terrain instability, and weak natural dams. Countries like India and Nepal are increasingly vulnerable, with significant threats to life, infrastructure, and ecosystems. While India has made substantial progress through scientific innovation, institutional coordination, and field-level implementation, several gaps remain — especially in real-time monitoring, transboundary alert systems, and community-level integration. The way forward requires a comprehensive and collaborative approach — combining technical preparedness, policy-level planning, and regional cooperation to mitigate the growing GLOF threat in the Himalayas.

Short Issues

India's Renewable Rise

Context:

India has reached 50% of its installed electricity capacity from non-fossil fuel sources—five years ahead of the target set under its Nationally Determined Contributions (NDCs) to the Paris Agreement. As of 30 June 2025, India's total installed electricity capacity is 484.82 GW. The share between fossil and non-fossil sources is:

- Fossil fuel (Thermal): 242.04 GW (49.92%)
- Non-fossil fuel (RE + Large Hydro + Nuclear): 242.78 GW (50.08%)

About Nationally Determined Contributions (NDCs):

- Nationally Determined Contributions (NDCs) are non-binding climate action plans submitted by countries under the Paris Agreement. They outline each nation's strategies to:
 - » Cut greenhouse gas emissions
 - » Adapt to climate impacts
 - » Contribute to the global goal of limiting warming to well below 2°C, ideally 1.5°C
- Though not legally enforceable, NDCs are critical because they translate global climate goals into national action plans, guiding investments and policymaking across sectors.

India's NDC:

- Reach 500 GW Non-fossil energy capacity by 2030.
- 50 per cent of its energy requirements from renewable energy by 2030.
- Reduction of total projected carbon emissions by one billion tonnes from now to 2030.
- Reduction of the carbon intensity of the economy by 45 per cent by 2030, over 2005 levels.
- Achieving the target of net zero emissions by 2070.

Policies and schemes have driven this clean energy growth:

- India's clean energy rise has been fuelled by

targeted policies and initiatives, including:

- » **PM-KUSUM:** Empowers farmers with solar-powered pumps and enables feeder-level solarisation.
- » **PM Surya Ghar:** Muft Bijli Yojana: Launched in 2024 to support rooftop solar adoption by one crore households.
- » **National Wind-Solar Hybrid Policy and solar park development:** Promote large-scale, cost-effective renewable energy.
- » **Support for bioenergy:** Integrates rural livelihoods with clean energy, contributing to circular economy goals.

Benefits of India's renewable energy transition:

- India's renewable expansion has resulted in multiple co-benefits beyond decarbonisation:
 - » **Energy access:** Especially in rural and remote areas.
 - » **Employment generation:** Through bioenergy, solar rooftop installation, and maintenance.
 - » **Health improvements:** Reduced air pollution and associated health risks.
 - » **Economic upliftment:** Solarising agriculture and enabling citizens to become prosumers (energy producers + consumers).

Conclusion:

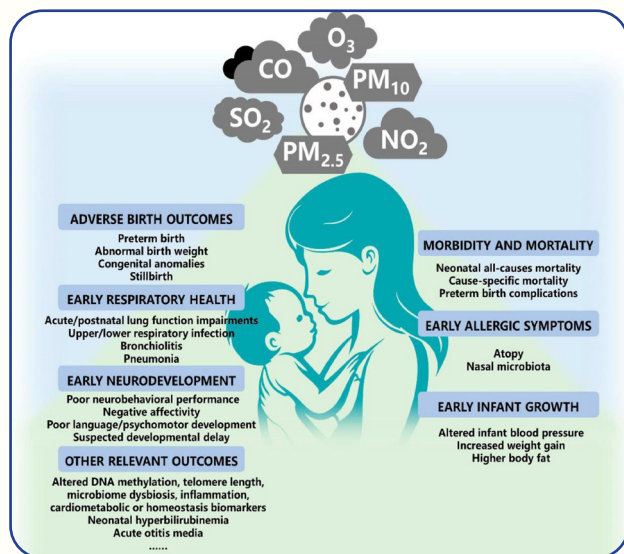
As India celebrates this milestone, it is clear that the country is poised to become a global leader in clean energy and sustainable development. With a strong foundation in place, India is well-equipped to achieve its ambitious targets and inspire a cleaner, greener future for generations to come.

Air Pollution and Birth Outcomes in India

Context:

Air pollution is a daily reality for millions in India and has long been linked to respiratory and cardiovascular diseases. A new research shows that the harmful effects of Air Pollution

begins even before birth. The study, using data from the National Family Health Survey (NFHS) and satellite-based air quality data, reveals how exposure to fine particulate matter (PM_{2.5}) during pregnancy significantly increases the risks of preterm births (PTB) and low birth weight (LBW).



Key Highlights:

- **Health Risks of PM_{2.5} Exposure:** PM_{2.5} refers to airborne particles smaller than 2.5 micrometres, capable of entering the bloodstream. Pregnant women exposed to high PM_{2.5} levels had:
 - » 70% higher chance of preterm birth (PTB)
 - » 40% higher chance of delivering babies with low birth weight (LBW)
- **Regional Disparities:** Northern Indian states face the greatest burden:
 - » Delhi, Punjab, Haryana, Uttar Pradesh, Bihar showed the highest PM_{2.5} levels.
 - » Delhi's PM_{2.5} concentration was found to be 13.8 times higher than that in Kerala.
- PTB was most common in:
 - » Himachal Pradesh (39%)
 - » Delhi (17%)
- LBW was most prevalent in:
 - » Punjab (22%)
 - » Delhi (19%)

Gender and Socioeconomic Trends

- Female children were more likely to be born with LBW (20%) compared to males (17%).
- Children of illiterate and poorer mothers had higher rates of both PTB and LBW.
- Households using solid fuels for cooking also reported elevated PTB and LBW cases.

Influence of Temperature and Rainfall

- Even slight increases in temperature were linked to a rise in LBW, though not PTB.
- High temperatures contribute to maternal dehydration, heat stress, and cardiovascular strain, all of which affect placental function and foetal growth.
- Excessive rainfall during monsoon:
 - » Raises the risk of waterborne infections
 - » Causes healthcare access disruptions due to flooding and displacement
 - » Increases the chance of pregnancy complications

Suggested Measures:

- The elevated risks of preterm births and low birth weight reflect both environmental and socioeconomic vulnerabilities.
- Addressing this requires urgent steps such as:
 - » Reducing emissions from vehicles, industries, and household fuels
 - » Expanding access to clean cooking fuels
 - » Strengthening maternal healthcare
 - » Protecting pregnant women from extreme heat and flooding

Conclusion:

The study provides strong evidence that air pollution affects maternal and child health even before birth, especially in India's most polluted states. Cleaner air is essential not only for public health but also to ensure that every child is born with a healthy start in life.

The Link between Melting Glaciers and Volcanic Eruptions

Context:

A recent study has shed light on the potential connection between melting glaciers and increased volcanic activity. According to researchers, the weight of ice on volcanoes can exert pressure on underground magma chambers, suppressing eruptions.

- New research presented at the 2025 Goldschmidt Conference in Prague — the world's premier event for geochemistry — has highlighted how the melting of glaciers and ice caps can directly influence volcanic activity across the globe.

How glaciers and volcanoes are connected:

- Scientists have long suspected that melting ice could affect volcanic activity. The weight of ice on volcanoes can prevent magma from rising to the surface, thereby reducing the likelihood of eruptions. However, when glaciers melt, this pressure is released, allowing magma to rise more easily and potentially leading to explosive eruptions.
- This phenomenon is especially concerning for West Antarctica, a region where around 100 volcanoes lie dormant beneath thick ice sheets. As global temperatures continue to soar, these ice layers are projected to shrink drastically over the coming decades and centuries, raising the risk of more frequent and more explosive volcanic events.

The Impact of Climate Change:

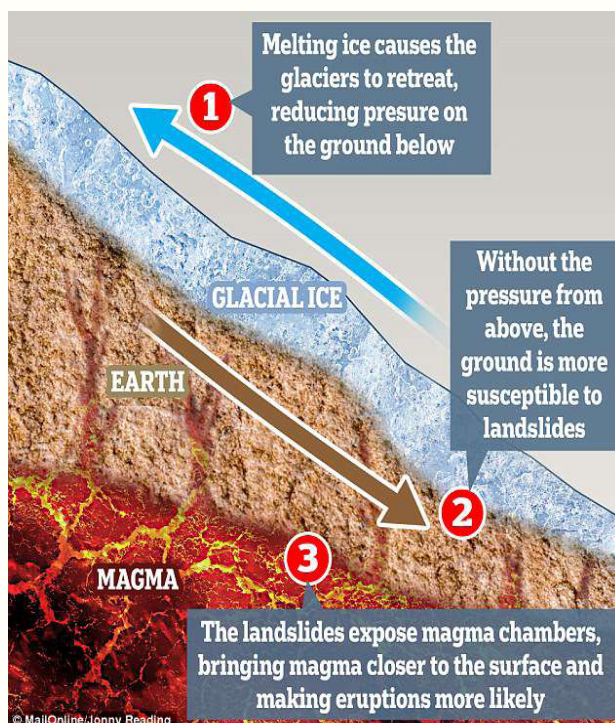
- Climate change is playing a significant role in the melting of glaciers and ice caps around the world. As global temperatures rise, ice sheets are disappearing at an alarming rate, potentially leading to an increase in volcanic activity.

The Consequences of Increased Volcanic Activity:

- Volcanic eruptions can have significant impacts on the environment and human societies. While eruptions can cause temporary cooling due to ash and sulfur dioxide emissions, sustained volcanic activity can also release large amounts of greenhouse gases, including carbon dioxide

and methane, which can further heat the planet.

- The connection between melting glaciers and volcanic eruptions highlights the complex and interconnected nature of the Earth's systems. As global temperatures rise, melting glaciers can lead to more volcanic eruptions, which in turn can release more greenhouse gases, further exacerbating climate change. This vicious cycle underscores the need for urgent action to mitigate the impacts of climate change.



Conclusion:

The link between melting glaciers and volcanic eruptions is a growing concern that highlights the complex relationships between the Earth's systems. As climate change continues to melt glaciers and ice caps around the world, the risk of increased volcanic activity will likely grow. Understanding this connection is crucial for predicting and preparing for the potential impacts of volcanic eruptions on the environment and human societies.

Assam's Genetic Initiative for Rhino Horn Samples

Context:

The Assam Forest Department recently initiated the genetic analysis of 2,573 rhino horn samples, marking a significant phase in India's fight against wildlife crime. This effort is part of the RhoDIS India (Rhino DNA Index System) programme — a scientific, forensic tool designed to track and identify individual rhinos using DNA extracted from their horns.

About RhoDIS India programme:

- The Rhino DNA Index System (RhoDIS India) is a national-level forensic DNA database created to:
 - » Generate genetic profiles of individual rhinos.
 - » Track the origin of rhino horn samples recovered in poaching or illegal trade.
 - » Support law enforcement with irrefutable scientific evidence.

Key Features:

- Based on a model pioneered in South Africa, where RhoDIS has been instrumental in curbing rhino poaching.
- Uses Short Tandem Repeats (STRs) — unique DNA sequences that act like genetic fingerprints.
- Administered by the Wildlife Institute of India, with support from:
 - » Ministry of Environment, Forest and Climate Change (MoEFCC)
 - » WWF-India
 - » Rhino-range states, including Assam, West Bengal, and Uttar Pradesh.

Current DNA Study Objectives:

The ongoing study at WII's genetics lab (July 2025) focuses on:

- **Creating Individual DNA Profiles:** Enables identification of specific rhinos and comparison with future horn seizures.
- **Studying STR Allele Frequency Shifts:**
 - » Detects changes in genetic diversity over time.
 - » Assesses potential impacts of inbreeding,

habitat fragmentation, or poaching pressure.

- **Strengthening Population Monitoring:** Helps understand rhino population structure, movement, and genetic health.

Why RhoDIS Matters



- Builds a **national DNA database** for rhino horns.
- Helps **track poached horns**, bust illegal trade networks.
- Aids **prosecution** through genetic evidence linking horn to carcass.
- Strengthens **wildlife crime forensics** in India.

About the Greater One-Horned Rhinoceros

- Status:** Vulnerable (IUCN Red List).
- Habitat:** Floodplains & grasslands in NE India & Nepal.
- Strongholds:** Kaziranga, Jaldapara, Pobitora, Chitwan.



About One-Horned Rhino;

- One of the five rhino species globally (others: White, Black, Javan, Sumatran).
- Only rhino species found in India.
- Largest among all rhino species.
- Recognized by a single black horn and grey-brown skin with folds.
- **Herbivorous:** primarily grazes on grasses, also consumes leaves, fruits, and aquatic plants.
- **Habitat:**
 - Found in Indo-Nepal Terai, northern West Bengal, and Assam.
- **In India, populations exist in:**
 - » Assam: ~2,640 rhinos
 - Kaziranga National Park (KNP): ~2,400 rhinos
 - Pobitora WLS, Manas NP, Orang NP
 - » West Bengal and Uttar Pradesh (smaller numbers)

Protection Status:

- IUCN Red List: Vulnerable
- CITES: Appendix I (highest level of protection)

- Wildlife Protection Act, 1972: Schedule I (highest protection under Indian law)

Major Threats:

- Poaching for horns
- Habitat loss and fragmentation
- High population density in limited areas
- Declining genetic diversity

Conservation Efforts:

- National Rhino Conservation Strategy (2019).
- Indian Rhino Vision 2020 (2005–2020): Targeted 3,000 rhinos in 7 protected areas in Assam.
- RhoDIS India: DNA profiling of all rhinos to support monitoring and anti-poaching.
- New Delhi Declaration on Asian Rhinos (2019): Signed by 5 range countries—India, Nepal, Bhutan, Indonesia, Malaysia.

Conclusion:

With over 2,600 rhino horns examined and samples prepared for genetic analysis, Assam's initiative sets a precedent in using science and policy together for conservation. As the RhoDIS India database grows, it will serve as a critical tool for rhino protection, wildlife crime investigation, and ensuring the genetic future of India's iconic one-horned rhino.

New Garcinia Tree Species Discovered in Assam

Context:

A new tree species belonging to the genus *Garcinia* has been discovered in Assam. The species, named *Garcinia kusumae*, was recently described in a peer-reviewed journal that focuses on botanical taxonomy and plant geography. This discovery contributes to India's rich plant diversity and highlights the importance of systematic botanical surveys in documenting lesser-known flora of the Northeast region.

About the tree species:

- Garcinia kusumae* was found in Bamunbari, a location in Baksa district of Assam. The discovery happened during a survey of

Garcinia species aimed at updating the regional records.

- The genus *Garcinia* is already known for its ecological and medicinal importance, with many species valued for their fruits and pharmacological properties.
- Garcinia* is the largest genus in the family Clusiaceae and comprises around 414 known species of shrubs and trees. These species are distributed across tropical regions worldwide. Major centres of diversity are located in Africa, Australasia, and Southeast Asia.
- The genus is especially common in lowland tropical rainforests, where it contributes to forest ecology and is sometimes used for traditional medicine.
- In India, botanists have documented 33 species and seven varieties of *Garcinia*. Assam alone accounts for 12 species and three varieties. The newly described *Garcinia kusumae* further adds to this diversity, underlining the Northeast's importance as a biodiversity hotspot.



Discovery and Documentation:

- The specimen was discovered in April during a field survey. It is locally called "thoikora" in Assamese. Researchers noticed its distinct morphological characteristics, which were different from other known species. After careful comparison with existing records, the tree was determined to be a new-to-science species.
- Specimens were collected following standard herbarium methods. This involved

pressing, drying, and preserving the plant material to serve as reference samples for future studies. The species description was prepared in detail to meet the scientific standards for publication in international journals.

- *Garcinia kusumae* is a dioecious evergreen tree, meaning individual trees bear either male or female flowers. It can grow up to 18 metres tall. The flowering season occurs between February and April, while the fruits mature from May to June.

Conclusion:

The discovery of *Garcinia kusumae* showcases the significance of ongoing botanical surveys and taxonomic research in India. As biodiversity faces increasing threats from habitat loss, climate change, and human activities, documenting new species is essential for conservation planning and understanding ecological relationships. Such findings also draw attention to the Northeast region as a critical area for future exploration. Continued investment in taxonomy, field surveys, and biodiversity assessment will not only enrich scientific knowledge but also support India's commitments to protecting its natural heritage.

India Records 683 New Faunal and 433 New Floral Discoveries in 2024

Context:

India's rich biodiversity continues to grow with the addition of hundreds of new species and records. In 2024, the country documented 683 new faunal taxa and 433 taxa of flora, underscoring the importance of continuous exploration and conservation efforts. The Union Minister for Environment, Forest and Climate Change, Bhupender Yadav, shared these findings recently.

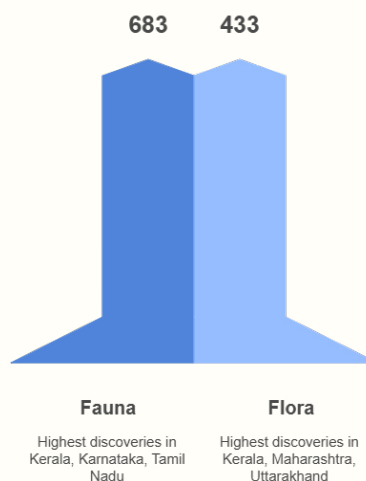
Key Highlights of Faunal Discoveries:

- Among the 683 faunal taxa, 459 were new species, while 224 were new records for India. Kerala emerged as the state with the

highest number of new animal discoveries, contributing 101 taxa (80 new species and 21 new records). Other significant contributors included:

- » Karnataka – 82 taxa (68 new species, 14 new records)
- » Tamil Nadu – 63 taxa (50 new species, 13 new records)
- » Arunachal Pradesh – 72 taxa (42 new species, 30 new records)
- » Meghalaya – 42 taxa (25 new species, 17 new records)
- » West Bengal – 56 taxa (25 new species, 31 new records)
- » Andaman and Nicobar Islands – 43 taxa (14 new species, 29 new records)
- These discoveries highlight the biological richness of the Western Ghats, Eastern Himalayas, and island ecosystems.
- Among significant faunal findings were two new genera and 37 species of reptiles. Notably, *Dravidoseps gouensis*, belonging to a new genus, was described, along with *Anguiculus dicaprio*, a new species of snake named in honor of actor Leonardo DiCaprio. Researchers also identified five new species of amphibians, adding to India's diverse herpetofauna.

New Species Discoveries in India (2024)



Notable Floral Discoveries:

- In 2024, scientists described 410 new species and 23 infra-specific taxa of plants, totaling 433 discoveries. Kerala again led with 58 new floral taxa, followed by Maharashtra (45) and Uttarakhand (40).
- The 433 plant discoveries included:
 - » 154 Angiosperms (flowering plants)
 - » 4 Pteridophytes (ferns and their allies)
 - » 15 Bryophytes (mosses and liverworts)
 - » 63 Lichens
 - » 156 Fungi
 - » 32 Algae
 - » 9 Microbes
- These findings underline the ecological importance of the Western Ghats and Northeastern India, which together contributed 35% of all new plant discoveries.
- Among the significant botanical discoveries were rare and ecologically important orchids such as:
 - » *Bulbophyllum gopalianum*
 - » *Coelogyne tripurensis*
 - » *Gastrodia indica*
 - » *Gastrodia sikkimensis*
- These species are expected to be of interest for conservation and further research due to their restricted habitats and ecological sensitivity.

Conclusion:

With these additions, India has now documented 56,177 plant species, including angiosperms, gymnosperms, pteridophytes, bryophytes, lichens, fungi, and algae. The consistent discoveries reflect India's status as a mega-diverse country and highlight the importance of scientific surveys by agencies such as the Zoological Survey of India and the Botanical Survey of India. These findings also underscore the urgent need to protect fragile ecosystems threatened by habitat loss, climate change, and human pressures. As new species continue to be described, they open opportunities for ecological research, bioprospecting, and conservation planning. India's biodiversity wealth is a reminder of the country's responsibility to safeguard natural

heritage for future generations.

Rare Caracal Sighting in Gandhi Sagar Sanctuary

Context:

An elusive and endangered caracal was recently sighted in the Gandhi Sagar Sanctuary, located in Madhya Pradesh's Mandla district. The caracal, locally known as "syahghosh," was captured on camera trap footage installed in the sanctuary.

Characteristics and Habitat of Caracal:

- The caracal is a shy and fast-running, nocturnal carnivorous animal primarily found in dry, bushy, rocky, and open grassy areas.
 - » Its presence is considered rare in India, and the species has been categorized as endangered.
 - » The dry and semi-arid ecosystem of Gandhi Sagar Sanctuary provides an ideal habitat for this secretive predator.

Significance of the Sighting:

- The presence of caracal in the sanctuary is a matter of pride for the state and highlights the success of conservation efforts.
- Forest officials attribute this ecological success to sustained efforts, including enhanced patrolling, habitat management, and strategic placement of camera traps.
- The sighting also underscores the sanctuary's role as a safe haven for rare species.



About Gandhi Sagar Wildlife Sanctuary:

- The Gandhi Sagar Wildlife Sanctuary, located in northwestern Madhya Pradesh, is a significant conservation area that boasts a diverse range of flora and fauna.
- Declared a sanctuary in 1974, it covers an area of 368 sq. km and is divided into two parts by the Chambal River.
- The Gandhi Sagar Sanctuary has been working tirelessly to preserve diverse ecology, and this discovery is a testament to those efforts. The sanctuary recently became home to two South African cheetahs, Prabhash and Pavak, as part of the cheetah reintroduction program.
- The presence of caracal and other rare species demonstrates the sanctuary's rich and balanced ecosystem.
- **Key Features**
 - » **Designated Important Bird and Biodiversity Area (IBA):** The sanctuary is recognized for its rich biodiversity and importance for bird conservation.
 - » **Varied Topography:** The sanctuary includes hills, plateaus, and the catchment area of the Gandhi Sagar Dam.
 - » **Vegetation Types:** Northern tropical dry deciduous forest, northern tropical dry mixed deciduous forest, and dry deciduous scrub.
- **Fauna:** The sanctuary is home to a variety of wildlife, including:
 - » **Herbivores:** Chinkara, Nilgai, and Spotted Deer.
 - » **Carnivores:** Indian Leopard, Striped Hyena, and Jackal.
 - » **Aquatic Species:** Crocodiles, fish, otters, and turtles.

Conclusion:

The caracal sighting in Gandhi Sagar Sanctuary is a significant finding from a biodiversity perspective. It indicates that the sanctuary's conservation efforts are paying off, and the ecosystem is capable of supporting a wide range of wildlife. This discovery will likely encourage further research and conservation initiatives in

the region.

Kaziranga's Avian Marvel

Context:

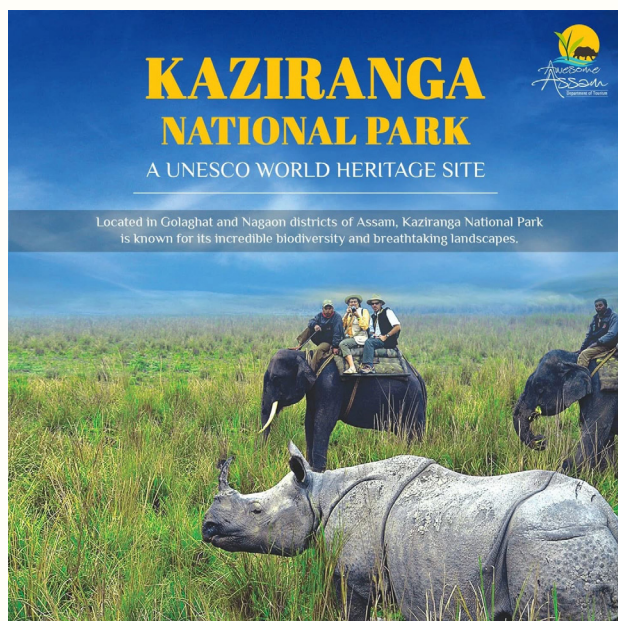
Researchers have found a great diversity of grassland bird species in a recent survey at the Kaziranga National Park and Tiger Reserve.

Key Findings:

- **43 grassland species recorded:** The survey documented 43 grassland bird species, including the critically endangered Bengal florican, the endangered Finn's weaver, and the swamp grass babbler.
 - The study recorded several critically endangered and vulnerable species, including:
 - » Bengal florican (Critically Endangered)
 - » Finn's weaver (Endangered)
 - » Swamp grass babbler
 - Also recorded were six vulnerable species, such as:
 - » Black-breasted parrotbill
 - » Marsh babbler
 - » Swamp francolin
 - » Jerdon's babbler
 - » Slender-billed babbler
 - » Bristled grassbird
 - **Breeding success of Finn's weaver:** The survey found that the Finn's weaver, a master nest-builder, is breeding successfully in the park, indicating healthy grassland ecosystems.
 - **Critical habitats identified:** The study identified several critical grassland habitats within Kaziranga that support significant populations of threatened and endemic species.
- ### Conservation Significance:
- **Grassland health indicator:** The Finn's weaver is a vital indicator of grassland health, and its successful breeding is a positive sign for the park's ecosystem.
 - **Comparison with other grasslands:** The study's findings can be compared with other grasslands in India, such as

those in Gujarat and Rajasthan, to better understand the diversity and conservation status of grassland bird species.

- **Protection of critical habitats:** The study's findings highlight the need to protect critical grassland habitats within Kaziranga that support threatened and endemic species.



About Kaziranga National Park:

- Kaziranga national park, located in Assam, is a UNESCO World Heritage Site recognized for its exceptional biodiversity and conservation efforts. It is home to:
 - » The largest population of Indian One-Horned Rhinoceros
 - » One of the highest tiger densities in India
 - » Rare and endangered species like the Eastern Swamp Deer, Wild Water Buffalo, and Finn's Weaver
- Its unique location in the floodplains of the Brahmaputra River creates a rich mix of grasslands, wetlands, and forests, supporting a wide range of flora and fauna.

History:

- » **1905:** Declared a Reserve Forest to protect rhinoceroses (influenced by Mary Curzon)

- » **1950:** Upgraded to a Wildlife Sanctuary
- » **1974:** Declared a National Park
- » **1985:** Designated a UNESCO World Heritage Site
- » **2006:** Became a Tiger Reserve following a decline in tiger numbers
- This timeline reflects Kaziranga's growing recognition as a vital ecological zone.

Kaziranga features a variety of ecosystems:

- Tropical Semi-Evergreen and Deciduous Forests with trees like Bombax ceiba and Ficus species.
- Alluvial Grasslands, rich in tall grasses such as Saccharum and Phragmites, essential for herbivores.
- Wetlands, replenished by annual flooding, support aquatic birds and migratory species.

Conclusion:

The Kaziranga National Park and Tiger Reserve's remarkable diversity of grassland bird species is a testament to the park's conservation efforts and the importance of protecting these critical ecosystems.

Environment Protection Rules, 2025

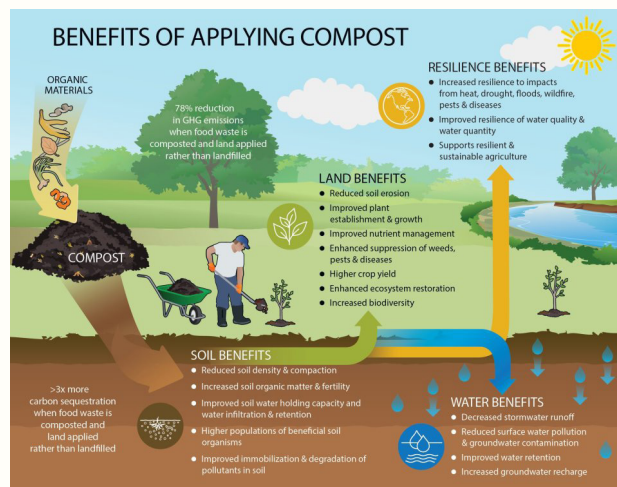
Context:

The Central Government recently notified the Environment Protection (Management of Contaminated Sites) Rules, 2025 on 25 July 2025. The rules seek to identify, assess, and scientifically remediate contaminated sites across India while ensuring accountability and public participation.

Key Features of the 2025 Rules:

- **Structured Mechanism for Site Identification:** State Pollution Control Boards (SPCBs) and local bodies are empowered to identify and list suspected sites based on:
 - » Industrial activities
 - » Historical waste dumping
 - » Community complaints
- **Centralised Online Portal:**

- » A portal managed by the Central Pollution Control Board (CPCB) will host all data on contaminated sites.
- » Ensures transparency, tracking, and integration of data across states.
- **Risk-Based Scientific Assessment:**
 - » Initial screening, followed by detailed site investigations, determines whether a site exceeds defined risk thresholds.
 - » If confirmed, it is officially designated as a “Contaminated Site”, triggering mandatory clean-up.
- **Polluter Pays Principle Enforced:**
 - » A “responsible person” (company, entity, or individual) is to be identified within 90 days.
 - » Polluters bear full liability for environmental and human health damage.
 - » Land transactions or land use changes are restricted until full remediation is verified.
- **Government Intervention When Polluter is Unknown:** If the polluter is untraceable, clean-up costs may be covered by:
 - » Environment Relief Fund (ERF) under the Public Liability Insurance Act
 - » Penalties collected from other environmental violations
- **Oversight and Monitoring:** A Technical Committee with representatives from ministries, SPCBs, experts, and regulators will:
 - » Monitor implementation
 - » Recommend additional actions
 - » Submit annual reports to the Centre
- **Public Participation:**
 - » Public comments must be invited within 60 days of site notification.
 - » Final list of contaminated sites to be published in local newspapers.
- **Cost-Sharing Model:**
- Funding ratio:
 - » 90:10 for Himalayan and Northeastern States (Centre:State)
 - » 60:40 for other States
 - » 100% Central funding for Union Territories



Advantages of the Rules:

- The rules establish a structured mechanism for identifying and cleaning up contaminated sites, which will help to ensure accountability and transparency.
- The risk-based approach to remediation will help to prioritize sites that pose the greatest risk to human health and the environment.
- The rules promote public participation and disclosure, which will help to ensure that affected communities are informed and involved in the remediation process.

Disadvantages of the Rules:

- The rules exclude specific categories, such as sites contaminated with radioactive waste, mining areas, and maritime oil spills, which may still pose significant environmental and health risks.
- While the rules provide for cost-sharing between the Centre and states, the funding mechanism may not be sufficient to cover the costs of remediation, particularly for sites where the polluter cannot be identified.
- The effectiveness of the rules will depend on their implementation, which may be challenging given the complexity of the issue and the need for coordination between different agencies and stakeholders.

Conclusion:

The Environment Protection (Management of

Contaminated Sites) Rules, 2025 represent a significant leap in India's environmental regulatory framework. For a country grappling with industrial contamination and rising environmental health costs, these rules offer a much-needed legal, institutional, and technological response to one of the most neglected areas of pollution control.

50% Decline of Lakshadweep Coral Reefs in 24 Years

Context:

A recent 24-year study on coral reefs in the Lakshadweep archipelago has revealed a concerning 50% decline in coral cover since 1998. The study, published in the journal *Diversity and Distributions*, highlights the impact of repeated marine heatwaves exacerbated by climate change on these vital ecosystems.

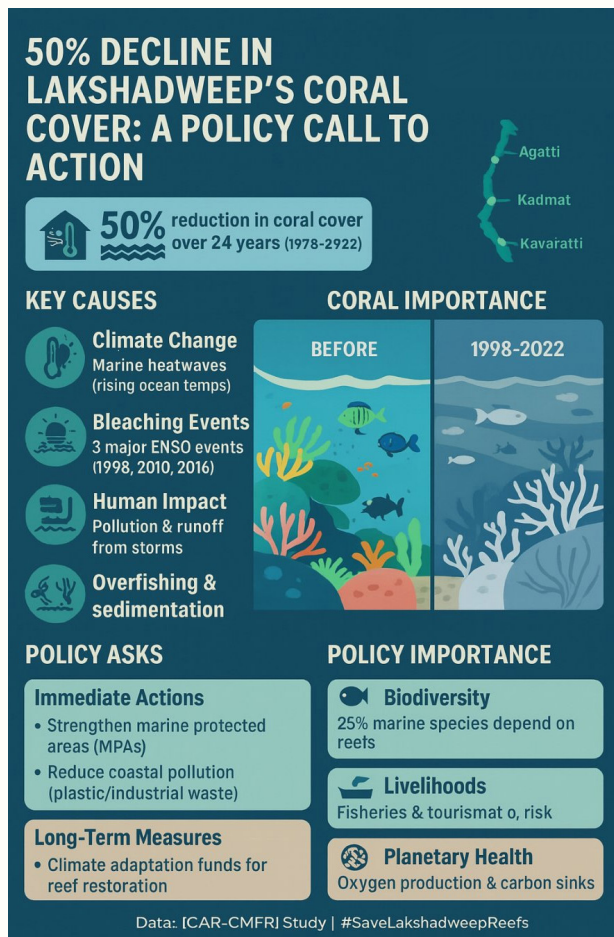
Key Findings of the research:

- **Coral Cover Decline:** Coral cover has declined from 37.24% to 19.6%, reflecting a roughly 50% reduction from the 1998 baseline.
- **Reduced Recovery Rate:** The decline is attributed to reduced recovery rates after each bleaching event, despite coral mortality decreasing with successive events.
- **Critical Recovery Period:** Recovery rates dramatically increase after six years, suggesting a critical period of bleaching-free years needed for reefs to recover.

Causes of Decline:

- Several interlinked factors have contributed to the decline of coral reefs in the Lakshadweep Archipelago:
 - » **Climate Change:** Rising global temperatures have increased sea surface temperatures, pushing corals beyond their thermal tolerance. This causes coral bleaching, where corals expel the symbiotic algae (zooxanthellae) that provide them with energy and color—often leading to widespread coral death if stress persists.

- » **Marine Heatwaves:** The region suffered three major marine heatwave events—in 1998, 2010, and 2016. These events caused sharp declines in live coral cover, especially during the 2010 event, which had the highest Degree Heating Weeks (DHW).



About Coral Reefs:

- Coral reefs are complex, underwater ecosystems formed by tiny animals called coral polyps. These ecosystems are found in warm, shallow, and clear tropical waters and are known for their high biodiversity and essential ecosystem services.
 - » Coral reefs are formed by the accumulation of calcium carbonate skeletons of coral polyps over time.
 - » Lakshadweep's coral reefs are a significant ecological feature of the

islands, known for their biodiversity and importance to the local ecosystem. It consists of 36 islands, 12 atolls, 3 reefs, and 5 submerged banks.

- Common types of coral reefs include:
 - » Fringing reefs (close to shore)
 - » Barrier reefs (separated from shore by a lagoon)
 - » Atolls (ring-shaped reefs surrounding a lagoon)

Importance of Coral Reefs:

- These coral reefs support rich biodiversity, providing essential ecosystem services, including:
 - » **Coastal Protection:** Coral reefs act as natural barriers against waves and storms, protecting the islands from erosion and damage.
 - » **Biodiversity Hotspots:** Coral reefs are home to a vast array of marine life, including numerous fish species, corals, and other invertebrates.
 - » **Fisheries and Livelihoods:** Coral reefs provide a source of food and livelihood for local communities, supporting fisheries and the fishing industry.
 - » **Tourism:** The beauty and diversity of coral reefs make them a popular destination for tourists, contributing to the local economy.

Conclusion:

The study's findings emphasize the need for urgent action to protect coral reefs and promote their recovery. By understanding the complex relationships between climate change, local conditions, and coral reef health, scientists and conservationists can work together to preserve these vital ecosystems.

Global Wetland Crisis

Context:

The 2025 Global Wetland Outlook was recently released by the Ramsar Convention Secretariat. The report reveals that wetland ecosystems are disappearing at an alarming rate, with

critical consequences for biodiversity, climate resilience, and human well-being.

Key Findings from the 2025 Outlook:

- **Massive Wetland Loss Since 1970**
 - » The world has lost 411 million hectares of wetlands since 1970 — a 22% reduction in overall extent.
 - » The average annual global loss rate stands at 0.52%, a figure that continues to rise due to human-driven pressures.
- **Regional Variations in Degradation**
 - » Wetland decline is most pronounced in Africa, Latin America, and the Caribbean, where the pace of degradation outstrips restoration efforts.
 - » In North America and Oceania, invasive species pose the greatest threat to wetland health.
 - » In Europe, drought and climate variability are the key drivers of degradation.

Primary Drivers of Wetland Degradation:

- Urbanization, industrial expansion, and infrastructure development are the dominant causes of wetland loss in the Global South.
- **Additional stressors include:**
 - » Agricultural encroachment
 - » Pollution from industrial effluents and domestic waste
 - » Water extraction and damming

About Wetlands:

- Wetlands are lands where water is the primary factor controlling the environment and the associated plant and animal life. They exist where the water table is at or near the surface or where the land is covered by shallow water.
- Despite covering only about 6% of the Earth's surface, wetlands provide ecosystem services valued between \$7.98 and \$39.01 trillion annually, including:
 - » Water purification
 - » Carbon sequestration
 - » Flood and coastal protection
 - » Groundwater recharge
 - » Biodiversity conservation

- However, the report reveals that global biodiversity conservation investments amount to just 0.25% of global GDP, indicating severe underfunding relative to the value wetlands provide.



Case Studies & Regional Initiatives:

- **Zambia's Kafue Flats**
 - » A \$300,000 wetland restoration project successfully reactivated natural flooding cycles.
 - » Benefits included enhanced biodiversity, revived fisheries worth \$30 million/year, and support for over a million people.
- **Asia's Regional Flyway Initiative**
 - » A \$3 billion international collaboration aims to restore over 140 wetlands critical for migratory birds and local communities.
 - » This model showcases the power of multilateral conservation financing and shared ecological responsibility.

Policy and Financial Recommendations:

- **National Planning Integration:** The report

strongly advocates for mainstreaming wetland protection into:

- » Urban and rural planning
- » Climate adaptation strategies
- » Water management and agricultural policies.

Innovative Financing Tools:

- To bridge the wetland funding gap, the Outlook suggests adopting:
 - » Green bonds targeting wetland restoration
 - » Results-based financing models
 - » Public-private partnerships and blended finance
 - » Carbon credit markets for wetlands' role in sequestration

Conclusion:

The 2025 Global Wetland Outlook concludes with a stark warning: the world cannot afford continued neglect of wetlands. These ecosystems are vital for maintaining the global hydrological cycle, sustaining biodiversity, and buffering the climate crisis. Restoring degraded wetlands is not only a moral and ecological imperative but also an economic opportunity, especially for rural communities and climate-vulnerable nations. As nations prepare for the 15th Meeting of the Conference of the Contracting Parties to the Ramsar Convention (COP15) in Zimbabwe this month, the report demands ambitious commitments, science-based policy, and innovative financing to halt the wetland crisis before it becomes irreversible.

New Lichen Species Discovery in the Western Ghats

Context:

Indian scientists from the MACS-Agharkar Research Institute, Pune, have identified a new species of lichen in the Western Ghats one of the world's most celebrated biodiversity hotspots. Named *Allographa effusosoredica*, this crustose lichen not only expands the catalog of India's unique flora but also deepens our understanding of symbiotic life forms and

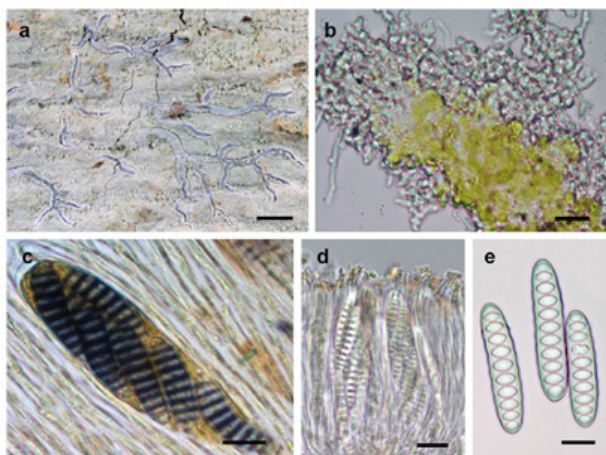
evolutionary complexity in tropical ecosystems.

Key Characteristics of *Allographa effusosoredica*:

- Its rare chemical makeup, including norstictic acid
- Its effuse soredia (structures involved in asexual reproduction)
- The presence of a *Trentepohlia* species as its algal partner
- Its mimicry of other lichens like *Graphis glaucescens*, which raises evolutionary questions about classification within the Graphidaceae family.
- Modern DNA sequencing (mtSSU, LSU, RPB2, ITS markers) confirmed its close relation to *Allographa xanthospora*, offering new insights into genetic evolution.

About Lichens:

- Lichens are not a single organism, but a symbiotic partnership — primarily between a fungus and a photobiont (usually a green alga or cyanobacterium). The fungus provides structure and protection, while the algal partner captures sunlight to produce food. Despite their small size, lichens:
 - » Build soil in barren landscapes
 - » Serve as a food source for insects
 - » Act as bioindicators of environmental health
- This newly discovered lichen underscores just how much remains unknown about these subtle yet vital organisms.



Significance:

- The discovery highlights the intricate symbiosis between fungi and algae in lichens, with the algal partner, *Trentepohlia* species, playing a crucial role in the lichen's survival.
- The Western Ghats, where the species was discovered, is a recognized biodiversity hotspot, and this find emphasizes the importance of preserving such regions.
- The study sets new molecular benchmarks for the genus *Allographa* in the region, contributing to India's growing lichen inventory.

Implications:

- The discovery underscores the need for conservation efforts to protect the Western Ghats' rich biodiversity.
- The study highlights the urgent need for more molecular work on Indian lichen diversity, especially in biodiversity hotspots.
- The research contributes to our understanding of symbiotic life forms and their hidden genetic complexity, shedding light on the complex relationships between organisms in these ecosystems

Conclusion:

This research marks a major step forward in the understanding of India's hidden biodiversity and symbiotic ecosystems. It emphasizes the need for more molecular-level research in biodiversity hotspots like the Western Ghats. It also reminds us that even in well-studied environments, nature continues to surprise — if we know where and how to look. As climate threats intensify, protecting and studying organisms like lichens becomes not just a scientific priority, but an ecological necessity.



Science & Technology



NISAR Mission: A Landmark India–US Collaboration in Earth Observation

The NASA-ISRO Synthetic Aperture Radar (NISAR) satellite was recently launched on July 30, 2025, marking a historic moment in global space cooperation. It is the first Earth observation satellite jointly developed by the Indian Space Research Organisation (ISRO) and the United States' National Aeronautics and Space Administration (NASA). Beyond its collaborative value, NISAR is poised to become the world's most powerful radar-based Earth observation satellite, enabling deeper insights into climate change, ecosystem health, natural disasters, and surface deformation. In development for over 15 years, NISAR combines advanced dual-frequency radar imaging with an open data-sharing model. It will capture high-resolution, all-weather, day-and-night imagery to support research, disaster management, and environmental monitoring globally and in India.

What is NISAR?

- ❖ NISAR is a microwave imaging satellite equipped with two Synthetic Aperture Radar (SAR) systems: one operating in the L-band (developed by NASA), and the other in the S-band (developed by ISRO). This is the first time two SARs are mounted on a single satellite, allowing it to simultaneously observe Earth's surface across different layers and weather conditions with unprecedented detail.
- ❖ **Its main objectives are to:**
 - » Study changes in land ecosystems
 - » Monitor ice sheet dynamics and sea ice

movement

- » Track forest biomass and carbon stock
- » Observe land deformation caused by earthquakes, landslides, volcanoes, and groundwater extraction
- » Support crop and wetland monitoring

What Makes NISAR Unique?

- ❖ It is the first satellite jointly built by ISRO and NASA.
- ❖ It is the first Earth observation satellite to carry two Synthetic Aperture Radars (SARs)—in both L-band and S-band frequencies.
- ❖ It is the most expensive Earth observation satellite ever built, with NASA contributing \$1.16 billion and ISRO about ₹750 crore (~\$90 million).
- ❖ It will generate 80 terabytes of data daily, three times more than any existing Earth observation system.

Understanding SAR Technology:

- ❖ Synthetic Aperture Radar (SAR) is an advanced form of radar imaging that works in the microwave region of the electromagnetic spectrum. SAR can image Earth day and night, and in all weather conditions, including through clouds, rain, and smoke.
- ❖ Unlike traditional optical cameras, SAR sends microwave signals to the Earth's surface and records the returning signals. These are then used to create high-

resolution images. SAR is especially useful in space, where large dish antennas cannot be installed easily.

- ❖ NISAR's 12-metre-wide antenna, developed by NASA, can match the resolution of a 20-kilometre-wide ground-based radar, using advanced algorithms and radar engineering.



NASA-ISRO Synthetic Aperture Radar satellite

The most sophisticated and costliest Earth observation satellite, with a price tag of **\$1.5 billion** (over Rs 12,978 crore)

Launch scheduled on **July 30, 2025**, from **Satish Dhawan Space Centre**, Sriharikota, Andhra Pradesh

- ISRO contributed around **Rs 470 crore** and will also bear the launch cost
- GSLV-F16 will inject the NISAR satellite into a **743 km Sun-synchronous orbit**
- The **2392-kg NISAR** is the first satellite to observe the Earth with a **dual-frequency Synthetic Aperture Radar**
- NISAR's **L-band** radar with a **25-cm wavelength** was made by NASA's Jet Propulsion Laboratory
- The **S-band** system with a **10-cm wavelength** was made by ISRO's Space Application Centre
- Both will use NASA's 12-metre unfurlable mesh reflector antenna
- NASA provided the deployable boom, a high-rate communication subsystem for science data, GPS receivers, a solid-state recorder, and a payload data subsystem.
- ISRO is providing satellite bus, launch vehicle, and launch services

What will the NISAR do?

- Provide a 3D view of Earth's land and ice, and help monitor ecosystems around the world
- Help governments plan for natural and human-caused hazards.
- Help map crops and monitor them through the growing season.
- NISAR will generate about 80 terabytes of data products daily – enough to fill about 150 512-gigabyte hard drives and more than any previous Earth satellite from either agency.

How will NISAR work?

- NISAR will observe the Earth's land and ice-covered surfaces with 12-day regularity on ascending and descending passes, sampling Earth on average every 6 days, helping scientists with the most accurate pictures of physical changes happening on the planet
- The satellite will measure even tiny changes on the Earth roughly every week, with each pixel capturing an area about half the size of a tennis court.

COMPILED BY KALYAN RAY, DHNS PHOTOS: JPL NASA

NISAR has a mission life of 3 years

Dual SAR Advantage: L-Band and S-Band:

NISAR's most innovative feature is its dual-frequency capability, which enhances the depth and variety of data collected:

- ❖ **L-Band SAR (NASA)**
 - » Uses longer wavelength microwaves
 - » Penetrates deeper into vegetation, forest canopies, ice, sand, and soil

- » Ideal for monitoring ground movement, forest biomass, underground water storage, and glacial dynamics
- » Focus areas include: Amazon rainforest, Western U.S., Antarctica, Greenland, and Alaska

❖ S-Band SAR (ISRO)

- » Uses shorter wavelength microwaves
 - » Suited for capturing surface-level features like crops, water bodies, and wetland extent
 - » Essential for agriculture monitoring, especially in India
 - » Tracks growth stages of crops like soybean, sugarcane, and corn
- ❖ Together, these SAR systems enable simultaneous observation of the Earth's surface and sub-surface. This synchronous imaging provides a more accurate and holistic picture compared to observations made by two separate satellites.

Scientific Objectives of NISAR:

- ❖ NISAR is designed to benefit researchers, scientists, and policymakers by providing crucial data in the following areas:
 - » Land deformation monitoring due to earthquakes, landslides, volcanoes, and groundwater extraction
 - » Estimation of forest biomass, helping in tracking carbon storage and climate change
 - » Crop monitoring, especially in India, to support food security and agricultural planning
 - » Wetland mapping for better understanding of hydrology and ecosystems
 - » Observation of polar regions, such as Greenland and Antarctica, to study changes in glaciers and sea ice
- ❖ The radar system uses SweepSAR technique, which offers high resolution and wide-area coverage.

Phases of the NISAR Mission:

- ❖ **Launch Phase:** Satellite was launched by GSLV-F16 from Sriharikota.
- ❖ **Deployment Phase:** The 12-metre antenna

will be deployed 9 metres from the satellite using a boom designed by NASA.

- ❖ **Commissioning Phase** (first 90 days): Testing and calibration of all instruments and systems.
- ❖ **Science Operations Phase**: Begins after commissioning and continues for the rest of the mission life. Observations and maneuvers are coordinated between ISRO and NASA.

India-US Workshare:

This mission highlights the growing strategic partnership between India and the United States in space science:

NASA	ISRO
Developed L-band SAR	Developed S-band SAR
Built 12m antenna and 9m deployable boom	Provided spacecraft bus, launcher, and integration
Delivered GPS, recorder, and downlink systems	Responsible for data handling, launch, and satellite control
Provides orbit and radar operations planning	Executes mission operations and ground support

- ❖ Both agencies will operate ground stations to receive and process data, which will be made available under a free and open data policy.

Scientific and Environmental Applications:

NISAR's advanced imaging will serve multiple domains critical to sustainable development and disaster resilience:

- ❖ **Climate and Ecosystem Monitoring**
 - » Measures forest biomass to estimate carbon sequestration
 - » Tracks wetland extent and health
 - » Observes vegetation cover changes in response to climate change
- ❖ **Ice and Water Dynamics**
 - » Maps Greenland and Antarctica's ice sheets
 - » Monitors sea ice drift and thickness
 - » Tracks mountain glaciers and seasonal snow cover

❖ **Agriculture and Food Security**

- » Assesses crop growth and yield patterns
- » Detects droughts and irrigation stress
- » Monitors land use changes in agricultural regions

❖ **Disaster Risk Reduction**

- » Detects land subsidence, volcanic activity, seismic deformation
- » Supports early warning systems for landslides and earthquakes
- » Enables post-disaster damage assessment

Strategic and Policy Significance:

- ❖ The NISAR mission strengthens the India-US strategic partnership in space. India's participation in the Artemis Accords and its engagement in joint human spaceflight initiatives reflect growing alignment with global space exploration norms and collaborations.
- ❖ NISAR also supports India's domestic priorities, including:
 - » Climate action and carbon accounting
 - » Precision agriculture
 - » Disaster preparedness
 - » Urban planning and water resource management
- ❖ The free and open data policy ensures that the mission's benefits reach global researchers, government bodies, and climate institutions.

Conclusion:

NISAR is a mission of scientific depth, engineering excellence, and international cooperation. Its dual-SAR imaging technology will provide detailed, reliable, and timely information on Earth's changing surface—benefiting sectors from agriculture and forestry to disaster management and climate science. For India, NISAR represents a leap in its Earth observation capabilities and global standing in space diplomacy. It is a flagship example of how technology, science, and partnerships can converge to serve the common goal of understanding and protecting the planet.

Short Issues

Mitochondrial Donation Technology Successfully Used in Human Trial

Context:

A new clinical trial has successfully used mitochondrial donation technology to help prevent the inheritance of mitochondrial diseases. For the first time, eight babies at high risk of receiving faulty mitochondrial DNA from their mothers were born healthy, due to this technique.

More about the news:

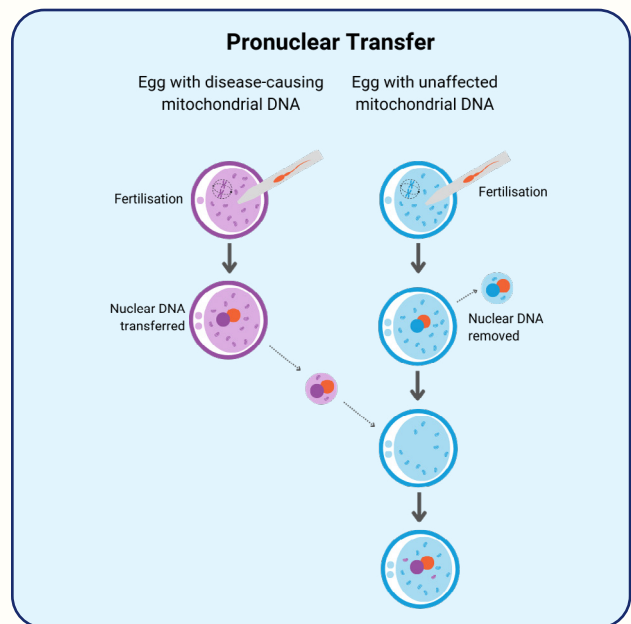
- In the recently published trial:
 - » 22 women with extremely high loads of mitochondrial mutations underwent the procedure.
 - » The method used was pronuclear transfer, where the nucleus of a fertilized egg is transferred into a donor egg with healthy mitochondria.
 - » 8 healthy babies have been born so far using this method.
 - » All babies are developing normally, and one more pregnancy is ongoing.
- The same trial also compared this approach with preimplantation genetic testing (PGT) — which works only for women who still have some healthy eggs. In that group, 18 babies were born. The mitochondrial donation group offered an option for women who had no viable eggs due to 100% mutation load.

What is Mitochondrial Donation?

- Mitochondria are energy-producing structures inside cells that have their own DNA, inherited solely from the mother. If this mitochondrial DNA (mtDNA) carries mutations, it can cause serious diseases affecting the brain, muscles, heart, and other organs. These disorders affect roughly 1 in every 5,000 births and often have no cure.
- Mitochondrial donation is a technique that replaces the mother's faulty mitochondria with healthy mitochondria from a donor

egg. The resulting embryo has:

- » Nuclear DNA from both biological parents (which determines physical and genetic traits),
 - » Mitochondrial DNA from a healthy donor (which helps prevent disease).
- This process does not alter the baby's identity or core genetics — only the faulty energy system is replaced.



Why This Matters:

- Until now, women carrying high levels of mtDNA mutations had no safe way to prevent transmission of these diseases. Mitochondrial donation changes that by:
 - » Offering a method even for women with 100% mutation load.
 - » Producing healthy children who would otherwise be at high risk.
 - » Creating an option beyond traditional IVF or adoption for affected families.
- Although the technique doesn't completely remove all maternal mitochondria, the remaining levels in these babies were too low to cause disease, according to scientists. Still, all children will be monitored closely for years to ensure long-term safety.

Challenges and the Road Ahead:

- The technology is currently available only in countries like the UK and Australia, where laws allow embryo manipulation under strict regulation.
- In the U.S., such procedures are still banned from clinical research due to restrictions on embryo modification and federal funding.
- Experts call for more global policy support and long-term follow-up studies.

Conclusion:

The successful use of mitochondrial donation in a human trial may aid in preventing inherited genetic diseases in future. While not yet widely available, this technique offers real hope to families affected by mitochondrial disorders. With further development and responsible regulation, mitochondrial donation could become a mainstream option in reproductive care.

Largest Black Hole Merger Detected

Context:

An international network of gravitational wave observatories has reported the detection of the most massive black hole merger ever recorded. The event, named GW231123, involved the collision of two exceptionally massive black holes—one around 140 times the mass of the Sun and the other approximately 100 times the Sun's mass. The merger resulted in a new black hole with an estimated mass of 225 solar masses.

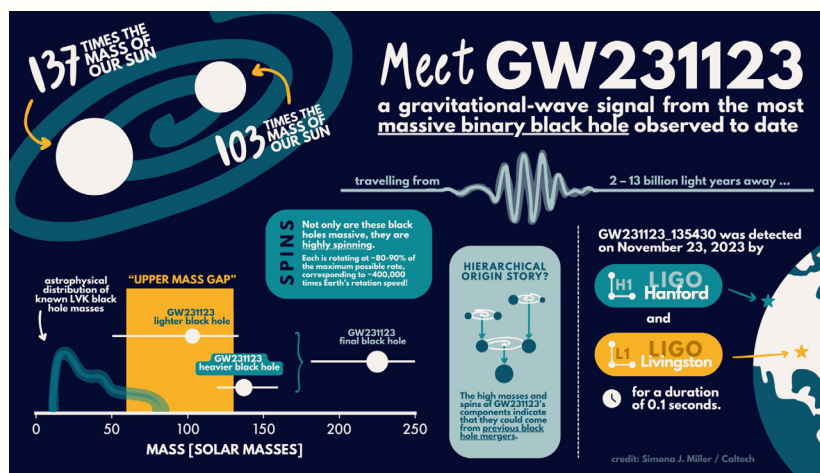
- The discovery was made by the LVK network, a global collaboration comprising, LIGO USA, Virgo – Italy, KAGRA – Japan.
- India is building its own observatory, LIGO-India, which will significantly enhance the precision and geographic reach of the LVK network.

Gravitational Waves and Their Importance:

- Gravitational waves are ripples in space-time caused by extremely violent cosmic events.
- Predicted by Einstein's General Theory of Relativity in 1915, they were first detected in 2015 by LIGO, leading to a Nobel Prize in Physics in 2017.
- These waves allow scientists to study astronomical events that are invisible through conventional telescopes, such as black hole and neutron star mergers.

Details of the GW231123 Event:

- **Masses Involved:**
 - » Black Hole 1: ~140 solar masses
 - » Black Hole 2: ~100 solar masses
 - » Final Black Hole: ~225 solar masses
- **Spin Rate:** Both black holes were spinning at extremely high speeds, indicating a dynamic and complex formation history.
- **Signal Duration:** The entire merger lasted only 0.1 seconds, making it a brief but intense event.
- **Distance:** The event took place billions of light years away—we are observing a phenomenon that occurred in the distant



past.

Why GW231123 Is Significant:

- **First Clear Detection of Intermediate-Mass Black Holes**
 - » Stellar black holes typically remain under 60 solar masses.

- » This event confirms the existence of intermediate-mass black holes (100–140 solar masses)—a rare and poorly understood class.
- **Hierarchical Merger Theory Supported**
 - » These massive black holes may have formed through multiple earlier mergers of smaller black holes, known as hierarchical mergers.
 - » This suggests a possible mechanism for forming supermassive black holes at galactic centers.
- **Challenges Current Formation Models**
 - » According to current models, black holes in the 65–120 solar mass range should not form due to pair-instability supernovae.
 - » The existence of black holes in this range defies standard stellar evolution theories, suggesting the need for revised models or new formation mechanisms.
- **Confirms Einstein's Theory, but Stretches Its Limits**
 - » The gravitational wave matched General Relativity's predictions, but such extreme events push the theory into uncharted territory, opening room for new physics.

Broader Implications:

- **Astrophysics:** Offers new insight into the environments (like dense star clusters) where such massive mergers occur.
- **Cosmology:** Improves understanding of black hole population and their role in cosmic evolution.
- **Gravitational Wave Science:** Reinforces the need for global cooperation and new detectors like LIGO-India to localize and study rare events.
- **Future Research:** May lead to advances in particle physics, gravity, and cosmology, especially if similar events are found to be more common than previously thought.

Conclusion:

GW231123 is a landmark discovery that confirms the existence of intermediate-mass black holes, challenges existing theories of black

hole formation, and demonstrates the power of global collaboration in gravitational wave astronomy. As instruments like LIGO-India join the network, such detections will deepen our understanding of the universe's most extreme phenomena.

Nipah Virus Resurfaces in Kerala

Context:

Kerala has once again come under the grip of the Nipah virus (NiV) following the confirmation of two suspected cases—an 18-year-old girl from Kozhikode who succumbed to Acute Encephalitis Syndrome (AES), and a 38-year-old woman from Malappuram, confirmed to be infected by the National Institute of Virology (NIV), Pune. This has reignited public health concerns, especially as the state recovers from earlier outbreaks in 2018, 2021, and 2023.

About the Nipah Virus (NiV):

- **Nature:** NiV is a zoonotic virus (transmitted from animals to humans) belonging to the Paramyxoviridae family, genus Henipavirus.
- **Origin:** First identified in Malaysia in 1999, it spread through pigs and infected humans.
- **Indian Context:** First outbreak in Siliguri, West Bengal (2001) and then in 2007. Kerala has seen repeated outbreaks since 2018.
- **Structure:** NiV is a negative-sense single-stranded RNA virus with envelope proteins (F and G) that allow it to enter human cells.

Transmission:

- Nipah virus spreads through:
 - » Direct contact with infected animals (fruit bats, pigs).
 - » Consumption of contaminated fruits or food (e.g., fruits licked by bats).
 - » Human-to-human transmission, especially in healthcare settings.

Symptoms and Disease Progression

- **Early symptoms:** Fever, headache, sore throat, muscle pain.
- **Progression:** Drowsiness, dizziness,

neurological issues, acute encephalitis.

- **Severe cases:** Seizures and coma within 24–48 hours.
- **Mortality rate:** High—up to 75% in some outbreaks.

Diagnosis and Testing:

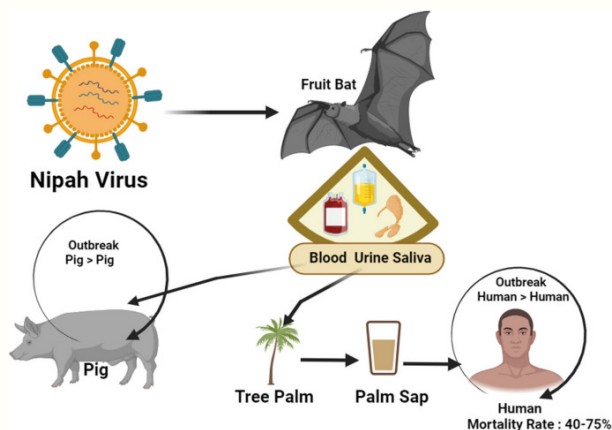
- Detection is carried out using:
 - » RT-PCR
 - » ELISA
 - » Serum Neutralization Test (SNT)
 - » Immunohistochemistry (IHC)

Treatment and Vaccines:

- No specific treatment or vaccine available.
- Ribavirin, an antiviral, may reduce mortality.
- Supportive care in ICU settings is the primary approach.

Nipah: A Regional and Global Concern:

- **Global presence:** Detected in Bangladesh, Cambodia, Thailand, Ghana.
- **Bangladesh and India:** Most recurrent outbreaks, often seasonal and region-specific.
- **India's hotspots:** Siliguri, Kozhikode, Malappuram.



Challenges in Containment:

- Multiple transmission routes: Zoonotic and human-to-human.
- No vaccine or definitive cure.
- Healthcare worker risk during treatment and autopsy.
- Quick neurological progression, limiting response time.

Preventive Measures & Recommendations:

- Surveillance in bat habitats (e.g., flying foxes – genus Pteropus).
- Avoid consuming partially eaten fruits or date palm sap.
- Safe burial practices and hospital infection control.
- Early detection tools and mobile labs in high-risk zones.
- Research and R&D funding for vaccine development.
- Drones for wildlife surveillance and environmental testing.

Conclusion:

The resurgence of Nipah in 2025 is a stark reminder of the unpredictable nature of zoonotic diseases. Kerala's proactive response, drawing on past experience, may help contain the spread. However, the lack of vaccines, dual-mode transmission, and the fatal nature of the virus necessitate long-term public health planning, research investments, and community awareness.

India's Indigenous Dengue Vaccine DengiAll

Context:

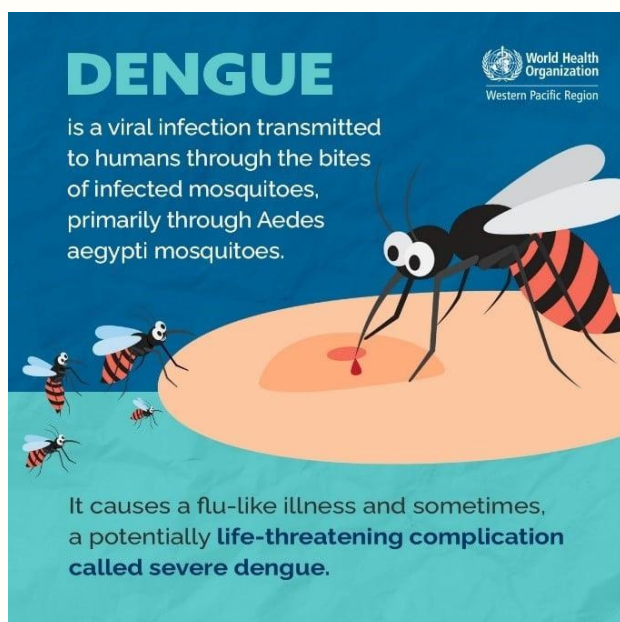
India recently launched the first Phase III clinical trial of an indigenous tetravalent dengue vaccine, DengiAll.

About DengiAll:

- DengiAll has been developed by Panacea Biotec Limited under a licensing agreement with the National Institutes of Health (NIH) in the United States.
- The vaccine contains a weakened form of all four dengue virus subtypes, similar to the NIH-developed version but with different inactive ingredients. Earlier Phase I and II trials in India demonstrated that DengiAll produced a robust and balanced immune response against all four virus types. It was also found to be safe and well-tolerated.

The Phase III Clinical Trial:

- India's Phase III trial is being coordinated by the Indian Council of Medical Research (ICMR). The study plans to recruit 10,355 healthy adults aged 18 to 60 years across 20 sites in India.
- As of now, over 7,000 participants have been enrolled and randomised. Participants are assigned in a 2:1 ratio to receive either the vaccine or a placebo. The trial is approved by the Drug Controller General of India and aims to complete enrolment by October this year.
- Participants will be followed up for two years after vaccination to evaluate the vaccine's efficacy, safety, and immunogenicity. Overall trial management is being handled by a dedicated national institute under ICMR. Follow-ups are expected to be completed by the last quarter of 2027.



About Dengue:

- Dengue fever is a major public health challenge in India and many tropical countries. The World Health Organization (WHO) has identified dengue among the top 10 global health threats. India contributes significantly to the global dengue burden, with data from the National Centre for Vector Borne Diseases Control showing around 2.3

lakh dengue cases and 297 deaths reported in 2024 alone.

- Dengue is caused by infection with any of the four dengue virus subtypes transmitted by *Aedes* mosquitoes. There is no specific antiviral treatment, and severe cases can result in bleeding, shock, and death. As a result, prevention through vaccination has long been a key priority.

How the Vaccine Helps:

- Experts involved in the study have explained that this vaccine could significantly advance the prevention of dengue, which currently has no curative treatment.
- Vaccination is expected to protect against severe manifestations such as bleeding, sudden drops in blood pressure, and potentially life-threatening complications.

Conclusion:

India's Phase III trial of DengiAll represents a major step towards developing a safe, effective, and domestically produced dengue vaccine. If successful, the vaccine could reduce dengue-related illness and mortality across the country. This effort highlights India's growing capabilities in vaccine development and clinical research. It also shows how local innovation and collaboration with global institutions can help address pressing public health challenges.

Unique Electrical Property in Chromium Antimonide (CrSb)

Context:

Scientists at the S N Bose National Centre for Basic Sciences (SNBNCBS), an autonomous institution under India's Department of Science and Technology, have recently uncovered a remarkable property of high-quality single-crystalline chromium antimonide (CrSb). They observed a direction-dependent conduction polarity (DDCP)—a phenomenon extremely rare in solid materials.

About the discovery:

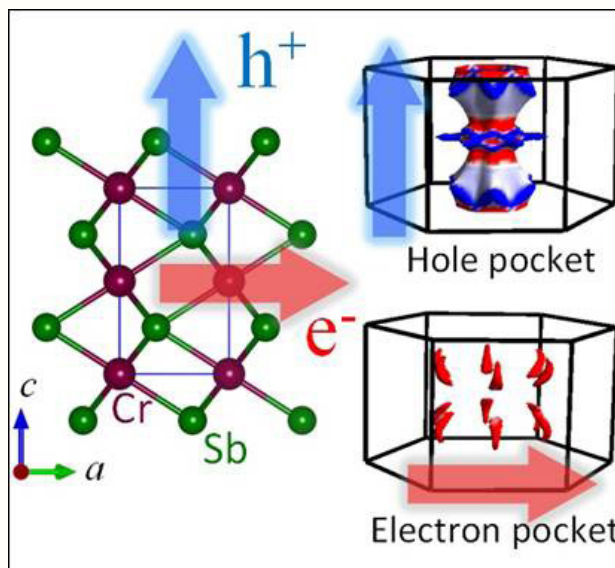
- The team at SNBNCBS found that CrSb

changes its conduction behavior based on current direction:

- When electric current flows within the layers of the crystal (like moving along the pages of a book), conduction is through electrons (n-type behavior).
- When current flows across the layers (like flipping through the pages), conduction happens through holes (p-type behavior).
- This dual conduction property within a single material is not just rare—it is the first time such behavior has been reported in any altermagnet.
- This discovery is important because it challenges the traditional classification of materials as either p-type (conducting through positively charged holes) or n-type (conducting through negatively charged electrons). In most cases, a single material shows only one type of conduction. However, CrSb can exhibit both, depending on the direction in which electric current flows.

About Altermagnets and CrSb:

- CrSb belongs to a newly discovered class of magnetic materials called altermagnets. Unlike common ferromagnets, which show strong external magnetism (like ordinary magnets), or antiferromagnets, whose internal magnetism cancels out completely, altermagnets display hidden magnetic order without any net external magnetism. This unique property makes them especially promising for advanced technologies such as spintronics, where devices use the spin of electrons to store and process information more efficiently.
- Among altermagnets, CrSb stands out for several reasons:
 - » It is metallic, meaning it can conduct electricity very effectively.
 - » It maintains its magnetic order at temperatures more than twice that of room temperature.
 - » It shows exceptionally large altermagnetic spin-splitting, almost 30 times that at room temperature, making it ideal for practical applications.



Significance and Applications:

- The discovery opens up exciting possibilities for next-generation electronics and energy devices. Currently, many technologies—from solar cells to thermoelectric generators—require combining p-type and n-type materials. Traditionally, this is achieved by mixing different substances or introducing dopants. CrSb, by naturally providing both conduction types, could:
 - » Simplify device architecture
 - » Reduce manufacturing complexity
 - » Improve energy efficiency
- Additionally, CrSb is composed of earth-abundant, non-toxic elements, offering an environmentally friendly alternative to materials that depend on scarce or hazardous components.
- In spintronics, where control over both charge and spin is essential, CrSb's combination of altermagnetic order and conduction versatility could help design more compact and efficient data storage and processing devices.

Conclusion:

The identification of direction-dependent conduction polarity in CrSb represents a significant step forward in material science. As the first altermagnet known to display

this property, CrSb showcases the untapped potential of these novel magnetic materials. Continued research and development could make this material a foundation for devices that are simpler, more sustainable, and more powerful than before.

Ham Radio Communication

Context:

Indian astronaut Shubhanshu Shukla interacted with students using a ham radio from the International Space Station (ISS) on July 4, 2025. This event highlights the importance of ham radio communication, a licensed radio service that relies on radio waves for establishing communication.

About Ham Radio:

- Ham radio, officially known as amateur radio, is a licensed non-commercial communication service that relies on radio waves for two-way communication.
- **Key Features:**
 - » **Purpose:** Used for educational outreach, scientific research, and emergency communication.
 - » **Operation:** Requires a dedicated frequency, a transceiver, and an antenna. Only licensed individuals (called “hams”) can operate it.
 - » **Eligibility in India:** Any person above the age of 12 can apply for a licence, issued by the Ministry of Electronics and IT after passing an exam.

Use of Ham Radio in Space:

- Ham radio's relevance in space dates back to 1983, when it was first used aboard a NASA shuttle to connect astronauts with Earth. Since then, it has become an integral part of astronaut-student interactions aboard the ISS through the Amateur Radio on the International Space Station (ARISS) program.

ARISS Objectives:

- Foster STEM education through live interactions.

- Enable global student outreach by astronauts.
- Serve as a backup communication tool onboard the ISS.
- Multiple space agencies—including NASA, Roscosmos, ESA, JAXA, and CSA—support ARISS to inspire future scientists and engineers.

Which Is Right for You?



CB Radio

Licensing

- ✗ No license required

Equipment

- \$ Simple and inexpensive

Ideal Uses

- 🚗 Casual use, offroad



Ham Radio

Range

- 🌐 Local to worldwide

Equipment

- ⚙️ Complex and versatile

Ideal Uses

- ⚠️ Hobby, emergency communication

Benefits of Ham Radio Communication:

- **Reliability in Emergencies:**
 - » Ham radio has proven essential when conventional communication fails due to wars, earthquakes, cyclones, or floods.
 - » In India, it has been vital during the 2001 Bhuj earthquake, 2004 tsunami, and 2013 Uttarakhand floods.
- **Educational Value:**
 - » Provides hands-on exposure to physics, electronics, and radio wave propagation.
 - » Encourages curiosity in young minds and promotes interest in STEM disciplines.
- **Scientific and Experimental Use:**
 - » Allows enthusiasts to experiment with antenna design, signal propagation, and atmospheric science.

Conclusion:

Ham radio remains one of the most resilient,

low-cost, and accessible technologies for communication—especially during emergencies and in remote areas. Shubhanshu Shukla's ISS interaction via ham radio reflects the democratization of space communication — connecting space explorers with students on Earth, sparking curiosity, and showcasing India's innovative outreach in space education.

The Dark Web

Context:

A 35-year-old mechanical engineer from Kerala's Muvattupuzha town was recently arrested for selling drugs over the dark web. According to the police, Mulayamkottil Edison, the Kerala engineer arrested for selling drugs over the dark web, was a "level-four vendor."

What is the Dark Web?

- The dark web is a part of the internet that cannot be accessed through regular search engines like Google or Yahoo. It requires specialized tools or browsers, such as Tor, to access its content.
- Tor, developed in the early 2000s, aims to enhance online privacy by routing traffic through volunteer-operated servers and encrypting data to obscure user identities.
- While it was initially designed to protect government communications, it has evolved into a platform for those seeking anonymity and privacy.

Legitimate Uses of the Dark Web

- Despite its reputation for illicit activities, the dark web serves legitimate purposes. Whistleblowers, journalists, and activists use it to communicate securely under repressive regimes.
- Platforms like SecureDrop allow anonymous leaks, protecting sources from retaliation. In countries with heavy internet censorship, the dark web provides a lifeline to uncensored information. It is also used by hospitals and institutions to protect their data.

Illicit Activities on the Dark Web:

- However, the dark web's anonymity also

fuels cybercrime. Black markets like the now-defunct Silk Road have operated here, trading in narcotics, counterfeit currency, and malware.

- Stolen financial data, hacking tools, and even contract killers have been advertised on these platforms. Law enforcement agencies worldwide monitor dark web activity, but the ever-evolving encryption methods make tracking criminals a persistent challenge.

Conclusion:

The dark web is a complex and multifaceted platform that serves both legitimate and illicit purposes. While it provides a safe haven for those seeking anonymity and privacy, it also facilitates cybercrime and illicit activities. As law enforcement agencies continue to monitor and combat crime on the dark web, it is essential to understand the nuances of this encrypted network and its potential risks and benefits.

Discovery of a New Blood Group Antigen in India

Context:

A new blood group antigen, CRIB, was discovered in a 38-year-old woman from Karnataka after her O Rh+ blood was found incompatible with all donor units before surgery. The case was escalated to UK's IBGRL, confirming the antigen. This marks a major advance in rare blood group research and transfusion medicine.

Case Background:

- The case began with a 38-year-old woman from Karnataka who was admitted for cardiac surgery. She was initially identified as having the O Rh+ blood group, which is the most common and considered a universal donor type for red blood cells.
- However, when doctors prepared for transfusion, none of the O-positive blood units were compatible and the patient's blood showed panreactivity — it reacted with all available donor samples.
- These results indicated the presence of an unidentified antigen in the patient's

blood, making her case highly unusual and medically significant. Recognising the potential of a rare blood type, the case was referred to specialised laboratories for deeper investigation:

- » **Stage 1:** Advanced serological testing at a reference lab in Bangalore confirmed the presence of an unidentified antigen.
- » **Stage 2:** The blood samples were sent to the International Blood Group Reference Laboratory (IBGRL) in the UK for molecular analysis.
- After ten months of genetic and molecular research, the IBGRL confirmed the discovery of a previously unknown antigen belonging to the Cromer (CR) blood group system.

INDIA DISCOVERS A NEW BLOOD GROUP!

Yes, you read that right. A 38-year-old woman from Karnataka confused all known blood typing protocols.

Her blood matched... *none*.



Meet CRIB – Newest Blood Group

Doctors in **Bengaluru + UK** labs cracked the code.

They found a never-seen-before **antigen** in the **Cromer system**.

NAMED **CRIB** = **CROMER** + **INDIA-BANGALORE**

She's the only known person with this type.

Key highlights of Discovery:

- The antigen was named CRIB, with "CR" representing Cromer and "IB" standing for India, Bangalore.
- This was officially announced at the 35th Regional Congress of the International Society of Blood Transfusion (ISBT) held in Milan in June 2025.
- This is the first-ever confirmed case of CRIB antigen globally.

Significance of the Discovery:

- **Improved Safety in Transfusions and Surgeries:** Rare blood types can lead to transfusion mismatches, triggering severe reactions.

- » Identifying rare antigens like CRIB enhances pre-transfusion testing protocols.
- » It ensures better donor-recipient matching, especially during emergency surgeries.

- **Support for Rare Donor Registries:** To support patients with rare or unidentified blood types:

- » A Rare Donor Registry has been launched in collaboration with:
 - Karnataka State Blood Transfusion Council
 - Indian Council of Medical Research (ICMR)
 - International Society of Blood Transfusion

- **Boost to Indian Medical Research:** India has previously contributed to rare blood group research with documented cases such as:

- » Rh null
- » In b negative

- The CRIB discovery strengthens India's position in global immunohematology and reinforces its research capabilities in advanced medical science.

Conclusion:

The discovery of the CRIB antigen is a landmark achievement in transfusion medicine. It highlights the importance of advanced diagnostic tools and the need for continuous research in blood group systems. For a country as diverse as India, building robust rare donor networks and encouraging voluntary donations are crucial. This discovery will influence future protocols in surgeries, emergency care, and organ transplantation, saving lives both domestically and internationally.

9% of Global Land Area at Zoonotic Outbreak Risk

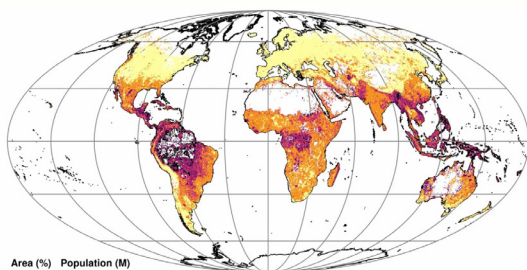
Context:

A recent study published in Science Advances (July 2025) reveals that over 9% of the world's

land area is at “high” or “very high” risk of zoonotic outbreaks—infections that transmit from animals to humans. The findings, based on geospatial disease and population data, highlight significant public health vulnerabilities, especially in ecologically disturbed and densely populated areas.

What Are Zoonotic Diseases?

- Zoonoses are diseases caused by pathogens that transmit from animals to humans, and sometimes vice versa.
 - » **Examples:** COVID-19, Ebola, Nipah, Avian Influenza, Rabies, etc.
- About 75% of emerging infectious diseases in humans have animal origins.



Risk	Area (%)	Population (M)
Very high	3.0	7.7
High	6.3	122.9
Medium	17.3	1198.0
Low	37.0	2965.3
Very low	36.5	1234.4

Key Findings of the Study:

- 9% of global land area is at high/very high risk of zoonotic transmission.
- 3% of the global population lives in areas classified as extremely high-risk.
- 20% of the population resides in medium-risk zones.
- Based on data from:
 - » Global Infectious Diseases and Epidemiology Network (GIDEON)
 - » WHO's list of priority pathogens with pandemic potential.

Geographical Hotspots:

- Although the study is global in scope, South Asia, Sub-Saharan Africa, parts of Latin America, and Southeast Asia stand out as high-risk zones due to:
 - » Dense human and animal interaction
 - » Wildlife trade and consumption

- » Deforestation and habitat encroachment
- » Inadequate surveillance systems

Causes of High Zoonotic Risk:

Factor	Description
Habitat loss	Deforestation and urban sprawl increase human-animal contact.
Climate change	Alters animal migration and disease vector patterns.
Agricultural expansion	Brings livestock and humans closer to wildlife habitats.
Wildlife trade	Increases cross-species disease transmission risks.
Weak health systems	Inadequate detection, reporting, and response mechanisms.

Significance for India and the World

- **Public Health Preparedness**
 - » India has previously witnessed outbreaks like Nipah virus, avian flu, and COVID-19.
 - » Zoonotic risks are not just health issues—they threaten livelihoods, biodiversity, food systems, and economic stability.
- **One Health Approach**
 - » Emphasizes interconnection between human, animal, and environmental health.
 - » Promoted by WHO, FAO, UNEP, and implemented in India's National One Health Mission (under development).
- **Sustainable Development Goals (SDGs) Impacted**
 - » SDG 3: Good Health and Well-being
 - » SDG 13: Climate Action
 - » SDG 15: Life on Land

Conclusion:

The study's findings serve as a critical warning signal: the next pandemic could be brewing in one of these high-risk zones unless swift and systemic measures are taken. For India, the implications are especially urgent given our dense population, biodiversity, and rapid urban expansion. Strengthening a One Health

ecosystem is not optional—it's imperative.

ICMR's Malaria Vaccine

Context:

The Indian Council of Medical Research (ICMR), through its Regional Medical Research Centre in Bhubaneswar (RMRCBB) and the National Institute of Malaria Research (NIMR), in collaboration with the Department of Biotechnology-National Institute of Immunology (DBT-NII), has developed a novel recombinant chimeric malaria vaccine candidate named AdFalciVax.

Key Features of AdFalciVax:

- AdFalciVax is the first indigenous recombinant chimeric malaria vaccine designed to target two critical stages of *Plasmodium falciparum*, the deadliest malaria parasite.
- Unlike single-stage vaccines, it offers broader protection, reduced risk of immune evasion, longer-lasting immunity, and extended thermal stability (effective for over nine months at room temperature). It also aims to reduce community transmission by impacting the parasite's lifecycle within mosquitoes.
- It works by using genetic material to produce specific proteins that trigger the immune system to recognize and fight *Plasmodium falciparum*, the most lethal malaria parasite.
- The vaccine targets two key stages: the parasite on its surface (CSP protein) and its development inside the mosquito, helping protect individuals and reduce community transmission.

About Vaccines:

- A vaccine is a biological preparation that provides active acquired immunity to a particular infectious or malignant disease. Vaccines introduce a harmless part or fragment of a pathogen (called an antigen) into the body, which activates the immune system.
- This triggers the production of antibodies

and memory cells, preparing the immune system to recognize and fight the real pathogen quickly if encountered later. This process offers long-lasting immunity and helps prevent illness.

About Chimeric vaccines:

- Chimeric vaccines combine multiple antigen-encoding genes of similar or different microbial strains to protect against hyper-evolving drug-resistant pathogens. The outbreaks of dreadful diseases have led researchers to develop economical chimeric vaccines that can cater to a large population in a shorter time.

About malaria:

- Malaria is caused by single-celled parasites of the genus *Plasmodium*, which are transmitted to humans through the bites of infected female *Anopheles* mosquitoes.
- When the mosquito bites, it injects the parasites into the bloodstream, which then travel to the liver to mature and reproduce.
- Five species commonly infect humans: *P. falciparum*, *P. vivax*, *P. knowlesi*, *P. ovale*, and *P. malariae*. Among these, *P. falciparum* is responsible for the majority of severe cases and deaths.

Conclusion:

The development of AdFalciVax is a significant step towards combating malaria in India and potentially other countries. While challenges remain, the potential impact of this vaccine on public health is substantial. Further research and development are needed to ensure the vaccine's safety, efficacy, and accessibility.

India's Growing Gig Economy: Opportunities, Challenges and the Road Ahead

Context:

Recently, the Union government allowed the use of bike taxis through aggregators like Ola and Uber, subject to state government approval. This decision has brought relief to thousands of gig workers, especially in states such as Karnataka, where a ban on bike taxis had taken away the main source of income for many. A large number of bike taxi riders come from economically weaker backgrounds—students, former daily-wage workers, and women who returned to work after the pandemic. They often prefer gig work because of its flexibility and low entry barriers. But this growing sector also highlights deeper questions about labour rights and protections.

- ❖ A study by the V.V. Giri National Labour Institute projects that India's gig workforce will rise from 3 million workers in 2020 to nearly 23 million by 2030. This will amount to about 7% of the country's total non-agricultural workforce.

What is the Gig Economy?

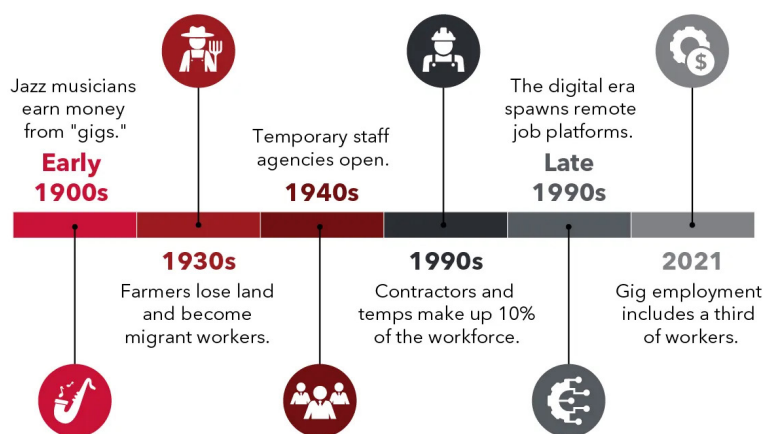
- ❖ The World Economic Forum defines the gig economy as the exchange of labour for money through digital platforms that connect service providers to customers for short-term tasks, usually paid per assignment.

- ❖ In India, gig workers are generally categorised as self-employed. They are active in both web-based and location-based services:

- » Web-based gig work includes tasks done online, like content writing, data analytics, digital marketing, and software development.
- » Location-based gig work involves physical services such as driving, delivering food, household repairs, and beauty services, coordinated through apps like Uber, Zomato, and Urban Company.

HISTORY OF THE GIG ECONOMY

With origins in early 20th-century jazz clubs, the gig economy now includes a significant portion of the U.S. workforce. Key dates in the history of the gig economy are:



- ❖ Gig work is often described as flexible and independent, offering freedom from a traditional 9-to-5 job. This model has

become more common across India's cities and towns.

Various aspects of Gig Economy:

There are two contrasting views about gig work.

- ❖ One perspective sees it as a positive shift towards the formalisation of labour. Digital payments and app-based monitoring are seen as bringing workers into the formal economy. For many women, gig platforms have increased access to paid work, and some studies have shown that women earn more in certain gig roles. Flexible schedules also help them balance work and family responsibilities.
- ❖ On the other hand, critics argue that gig work often results in exploitation due to the lack of adequate regulations. While platforms promote flexibility, many workers remain highly dependent on gig jobs. This dependence, combined with unpredictable incomes, increases their vulnerability.
 - » For example, during the 2024 heatwave, many gig workers had to work long hours outside without sufficient protection. They could not refuse assignments easily, as that would mean losing earnings or facing penalties.
- ❖ There are also issues of discrimination. In some cities, delivery workers have been denied access to lifts in high-rise apartments, reflecting class and caste biases.

Disguised Insecurity in Self-Employment:

- ❖ In India, gig workers are classified as self-employed. This classification is often used as a way to reduce costs for companies. Because workers are not considered employees, platforms are not obliged to provide paid leave, health insurance, or retirement benefits.
- ❖ Scholars such as Jan Breman have called this form of self-employment a "disguised" type of wage labour. Workers lack the bargaining power and protections of regular employment, yet bear all the risks. In reality, their independence is limited by platform algorithms and ratings.
- ❖ Indian labour regulations mainly recognise

three categories of employees:

- » Public sector workers
- » Government employees
- » Private sector employees
- ❖ Gig workers fall outside these categories. As a result, they are not protected by major laws such as the Minimum Wages Act, 1948, which ensures minimum pay for formal employees.

Labour Codes and State Efforts:

- ❖ In 2020, the Indian government passed four new labour codes, including the Code on Social Security. For the first time, this Code clearly defined gig and platform workers as individuals whose work arrangements fall outside the traditional employer-employee relationship.
- ❖ The Code proposes benefits for gig workers, such as:
 - » Life and disability insurance
 - » Accident cover
 - » Health and maternity benefits
 - » Old-age protection
 - » Childcare support
- ❖ It also mandates the creation of a National Social Security Board to recommend welfare schemes. However, the implementation of these provisions remains weak across the country.
- ❖ Some states have taken the lead to improve conditions:
 - » Rajasthan passed the Platform-Based Gig Workers (Registration and Welfare) Act, 2023. This law requires aggregators to deposit a monthly welfare cess for workers' benefits.
 - » Telangana introduced a draft bill called the Telangana Gig and Platform Workers (Registration, Social Security, and Welfare) Act, 2025, making it mandatory for aggregators to register workers and share their data.
 - » Karnataka has also introduced similar legislation to improve social protection.
- ❖ Despite these efforts, there is no uniform national regulation to guarantee minimum wages, grievance redressal, or basic protections.

The Way Forward:

- ❖ While India celebrates digital entrepreneurship and the rapid expansion of gig work, policymakers must address the serious gaps in social security and fair treatment.
- ❖ First, it is important to gather comprehensive national data about gig workers. Surveys like the Periodic Labour Force Survey could be expanded to study the sector's demographics, working hours, income patterns, and regional differences.
- ❖ Second, the categorisation of gig workers as purely "self-employed" should be revisited. Their dependence on platform algorithms, ratings, and work assignments blurs the line between independent work and controlled employment.
- ❖ Third, key protections should be put in place:
 - » Mandatory minimum wages or income thresholds
 - » Health and accident insurance funded by aggregators
 - » Access to paid leave and maternity benefits
 - » Right to collective bargaining and unionisation
 - » Protection against algorithmic biases,

arbitrary deactivation of accounts, and discrimination

- ❖ Several reports have documented that workers sometimes have their accounts deactivated without explanation, especially when they cancel assignments or take time off. This creates uncertainty and stress.
- ❖ Finally, the state and platform companies share a joint responsibility. Platforms benefit from India's large, young workforce and must contribute to their welfare. Governments, in turn, must ensure that technological progress does not come at the cost of worker exploitation.

Conclusion:

The growth of the gig economy in India reflects both economic opportunities and major challenges. For many workers, gig jobs are a vital source of livelihood. But flexibility should not become a cover for insecurity. Strong regulations, fair wages, and social protection are necessary to make gig work sustainable and dignified. As India's economy continues to digitise, it must also guarantee that the rights and well-being of gig workers are safeguarded. This will not only improve their quality of life but also build a more inclusive and resilient workforce for the future.

Rare Earth Elements in India: Strategic Resource, Challenges, and Opportunities

Context:

Rare Earth Elements (REEs) are a group of 17 minerals that have become vital for modern industries and national security. They are used in a wide range of applications, including clean energy technologies, advanced electronics, defence systems, and medical equipment. Although these elements are not truly rare, they are difficult and costly to extract in pure form. China currently dominates global production and refining, creating concerns over supply chain dependence and strategic vulnerabilities.

India has the third-largest reserves of REEs in the world, mainly found in coastal states like Andhra Pradesh, Odisha, Tamil Nadu, and Kerala. However, despite this potential, India produces less than one per cent of the global output. This situation highlights the need for effective policies, technological advancements, and sustainable practices to unlock the country's resources and reduce reliance on imports.

What Are Rare Earth Elements?

- ❖ Rare Earth Elements are a group of 17

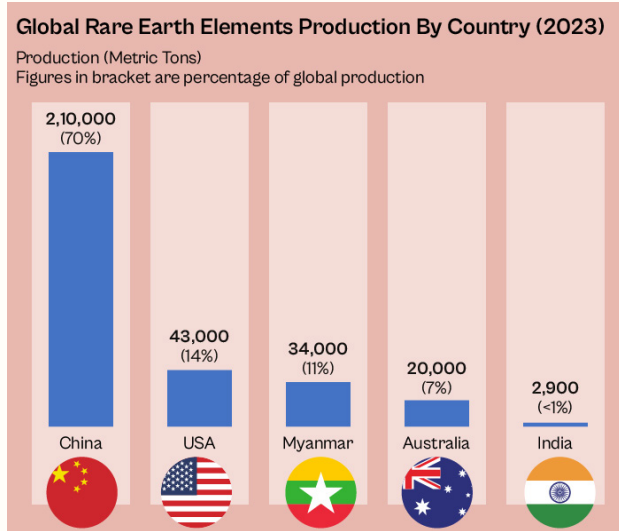
elements, including 15 lanthanides plus scandium and yttrium. They share unique properties such as high density, magnetic strength, and the ability to conduct electricity. Despite the name, they are not truly rare in Earth's crust. The main challenge is that they are rarely found in rich concentrations, making mining and processing expensive and technically demanding.

❖ Sources:

- » The main minerals containing REEs are bastnasite, monazite, and loparite. In India, monazite is the primary source, especially in coastal sands.
- » Monazite is also rich in thorium, a radioactive element, creating environmental and safety challenges during extraction.

❖ Types of REEs:

- ❖ Based on atomic number, REEs are categorised into:
 - » **Light REEs (Cerium Group):** Lanthanum, cerium, praseodymium, neodymium, samarium.
 - » **Heavy REEs (Yttrium Group):** Gadolinium, terbium, dysprosium, and others.
- ❖ Light REEs are more abundant and easier to extract, while heavy REEs are scarcer and vital for high-technology uses.



Global Production and China's Dominance:

- ❖ China has been the dominant player in the REE market since the 1990s. The Bayan Obo deposit in Inner Mongolia is the largest known reserve. In the 1980s, the US was the leading producer, mainly through mines in California. However, due to cheaper production costs, environmental laxity, and large-scale refining, China rapidly increased its share.
- ❖ According to the United States Geological Survey (2025):
 - » China holds about 44 million metric tons of reserves.
 - » Brazil has 21 million metric tons.
 - » India has about 6.9 million metric tons.
 - » The US holds 1.9 million metric tons.
- ❖ In 2024, China accounted for about 69% of global mining and over 90% of refining. However, projections suggest that by 2030, mining dominance will fall to 51% and refining to 76% as other countries ramp up production. This trend reflects international efforts to develop resilient, diversified supply chains due to geopolitical tensions and the strategic use of REE exports as leverage.

Why Are REEs So Important?

- ❖ REEs are often described as the “seeds of modern technology.” Their unique properties make them critical in several sectors:
 - » **Clean Energy:** They are used in magnets inside wind turbines, electric vehicles, and smart batteries.
 - » **Electronics:** REEs are essential for smartphones, computer screens, televisions, and audio systems.
 - » **Defence:** They are used in precision-guided weapons, radars, avionics, and aircraft engines.
 - » **Medical Equipment:** MRI contrast agents, X-ray machines, and cancer treatment devices rely on REEs.
- ❖ With the global push for renewable energy, digitalisation, and advanced military capabilities, the demand for REEs is set to grow sharply over the next two decades.

India's Reserves and Production:

- ❖ India has the third-largest reserves of

REEs in the world. According to the Indian Minerals Yearbook (2023):

- » Monazite resources are estimated at 12.73 million tonnes.
 - » Andhra Pradesh has the highest reserve, followed by Odisha, Tamil Nadu, and Kerala.
 - » Most Indian deposits are rich in light REEs such as cerium and lanthanum.
 - » Heavy REEs are limited in quantity, leading to reliance on imports for advanced technologies.
- ❖ Despite this resource base, India produces less than 1% of global REEs. Extraction is mainly done by Indian Rare Earths Limited (IREL), a public sector undertaking. The private sector has played almost no role so far, mainly due to regulatory restrictions and complex processing requirements.

Policy Changes and the National Critical Mineral Mission:

- ❖ Recognising the strategic importance of REEs, India has begun reforming its policies. In 2023, the Mines and Minerals (Development and Regulation) Act was amended to classify REEs as “Critical Minerals.” This classification aims to prioritise exploration and streamline approvals.
- ❖ In 2025, the government launched the National Critical Mineral Mission (NCMM) to increase self-reliance. The mission focuses on:
 - » Accelerating exploration and mapping of resources.
 - » Building domestic processing and refining capacity.
 - » Attracting private sector participation.
 - » Fostering international partnerships, especially with countries like Australia and the US.
 - » Developing recycling systems to recover REEs from e-waste.

International Developments:

- ❖ India is not alone in seeking alternatives to Chinese dominance. The US Department of Defense has invested over \$439 million

since 2020 to build domestic supply chains. However, refining remains a bottleneck—much of the ore extracted in the US still goes to China for processing. Similarly, the European Union and Japan are investing heavily in alternative supply chains.

- ❖ India’s partnerships with Australia and the US aim to share technology, improve mining efficiency, and secure supplies of heavy REEs that are scarce domestically.

Challenges Facing India:

- ❖ **Environmental and Health Concerns:** Monazite mining generates radioactive waste and toxic by-products. Strict environmental controls are essential but often slow down approvals.
- ❖ **Technological Limitations:** India lacks advanced refining facilities and the expertise needed to process heavy REEs.
- ❖ **Infrastructure Gaps:** Transport, storage, and processing infrastructure are underdeveloped, making scaling difficult.
- ❖ **Regulatory Hurdles:** Multiple clearances and complex processes have discouraged private companies from entering the sector.
- ❖ **Global Competition:** Even as India develops capacity, established suppliers will retain cost advantages and market relationships.

The Way Forward:

- ❖ For India to become a significant player in the REE sector, a balanced approach is needed:
 - » Strengthen domestic production by attracting investment and modern technology.
 - » Develop refining and value-added manufacturing within the country.
 - » Encourage public-private partnerships and simplify regulations to ease entry barriers.
 - » Invest in research for safer and cleaner extraction techniques.
 - » Promote e-waste recycling as a supplementary source of REEs.
 - » Deepen international cooperation to secure technology transfers and diversify supply.

Short Issues

ADEETIE Scheme

Context:

Union Minister Manohar Lal Khattar recently launched ADEETIE scheme to boost industrial energy efficiency among MSMEs.

About ADEETIE scheme:

- ADEETIE stands for Assistance in Deploying Energy Efficient Technologies in Industries and Establishments.
- It is a national initiative launched by the Ministry of Power to support Micro, Small, and Medium Enterprises (MSMEs) in adopting energy-efficient technologies.
- The goal is to reduce energy consumption, lower carbon emissions, and improve competitiveness through sustainable practices.

Key features of the ADEETIE scheme:

- **Budgetary outlay:** Rs.1,000 crore
- **Interest subvention:**
 - » 5% for Micro and Small Enterprises
 - » 3% for Medium Enterprises
- **Technical & financial support:**
 - » 875 crore for interest subvention
 - » 50 crore for energy audits
 - » 75 crore for implementation support
- **Coverage:** 14 energy-intensive sectors (e.g., textiles, steel re-rolling, food processing)

Implementation timeline and target reach of ADEETIE:

- **Implementation period:** FY 2025-26 to FY 2027-28 (3 years)
- **Phased roll-out:**
 - » **Phase 1:** 60 industrial clusters
 - » **Phase 2:** Additional 100 clusters
- **Targeted investments:** Rs. 9,000 crore (including Rs. 6,750 crore of MSME lending)
- The scheme aims to reach MSMEs across 14 sectors and 160 clusters, fostering a nationwide shift toward low-carbon industrial growth.

Impact:

- **Energy savings:** The scheme is expected to help MSMEs reduce energy consumption by

30-50% and improve the power-to-product ratio.

- **Investment mobilization:** The scheme is expected to mobilize Rs 9,000 crore in investments, including Rs 6,750 crore of prospective lending from MSMEs.
- **Low-carbon economy:** The scheme will support India's transition to a low-carbon economy by enabling MSMEs to upgrade to energy-efficient technologies.

About MSMEs:

- India's micro, small, and medium enterprises (MSMEs) sector is a critical pillar of the economy.
- Contributing 30% to GDP, employing over 100 million people, and accounting for 49% of exports, MSMEs have a larger economic footprint than entire nations like Thailand or Sweden. Throughout the country, it has around 63.4 million units.

Conclusion:

The ADEETIE scheme has the potential to transform the MSME sector by promoting energy efficiency and sustainability. With the right mix of incentives and support mechanisms, MSMEs can become globally competitive while reducing their environmental footprint.

India Emerges as Global Leader in Fast Payments, Driven by UPI: IMF

Context:

India has become the world's fastest payments country, due to the widespread adoption of the Unified Payments Interface (UPI), according to a recent note by the International Monetary Fund (IMF). UPI, developed by the National Payments Corporation of India (NPCI), facilitates instant inter-bank transactions via mobile devices and has revolutionized the way Indians make payments.

Key Findings:

- The IMF note uses nationwide data to examine the impact of interoperable

payment systems like UPI on digital transaction growth.

- UPI is currently the world's largest retail fast payment system by volume, processing over 18 billion transactions per month. This has led to a decline in the use of debit and credit cards and a shift away from cash.
- The IMF note highlights that India now makes faster payments than any other country, with proxies for cash usage falling since UPI's introduction in 2016.

UPI's Future:

- As UPI continues to grow, it is expected to play an increasingly important role in India's digital economy. With its widespread adoption and dominance in the retail payments space, UPI is poised to shape the future of payments in India. The IMF note highlights the importance of monitoring UPI's growth and ensuring that the ecosystem remains competitive and inclusive.

About UPI:

- Unified Payments Interface (UPI) is a real-time, instant digital payment system developed by the National Payments Corporation of India (NPCI), under the supervision of the Reserve Bank of India (RBI).
 - It allows users to transfer money between bank accounts instantly via smartphones, 24/7, including on holidays.
 - Launched in 2016, UPI has become a key driver of India's digital payment revolution.

UPI has transformed India's payment ecosystem:

- In 2023, UPI accounted for 70% of India's digital transactions
- In Q1 FY 2024–25, UPI recorded:
 - 201 billion transactions
 - Transaction value: Rs. 291 trillion

Global Recognition:

- UPI's model is being adopted internationally:
- Accepted in Singapore, UAE, France, Sri

Lanka, Bhutan, Nepal, Mauritius

- NPCI International is working on expanding UPI globally

Popular UPI Apps:

- PhonePe
- Google Pay
- Paytm
- Amazon Pay
- BHIM App (by NPCI)

Conclusion:

India's emergence as the global leader in fast payments is a testament to the success of UPI. With its innovative technology and widespread adoption, UPI has revolutionized the way Indians make payments. As UPI continues to grow, it is essential to monitor its impact on the payments ecosystem and ensure that it remains competitive and inclusive.

Kaladan Multimodal Transit Transport Project

Context:

India's ambitious Kaladan Multimodal Transit Transport Project (KMTTP) is progressing steadily and is expected to be operational by 2027. This project, linking India's eastern ports to the Northeast through Myanmar, is a major step in improving connectivity, boosting regional trade, and strengthening strategic influence in Southeast Asia.

- Once complete, the project will reduce the distance between Kolkata and Aizawl by about 700–1,000 km. This will cut transport costs and time by over 50%, making trade more efficient and accessible for the landlocked northeastern states.

Key Features of KMTTP:

- The Kaladan project was first conceptualized to overcome the severe geographic isolation of India's Northeast Region (NER), which is connected to the rest of the country only by the narrow Siliguri Corridor, often called the "Chicken's Neck."
- The framework agreement for the Kaladan

Project was signed in 2008. The Ministry of External Affairs serves as the nodal agency, while the Inland Waterways Authority of India is the Project Development Consultant.

- The project has two main transit components:
 - » **Waterway Component:** Cargo will be shipped from Sittwe Port in Myanmar up the Kaladan River to Paletwa.
 - » **Road Component:** Goods will be transported by road from Paletwa to Zorinpui on the India-Myanmar border in Mizoram.
- The port at Sittwe is already ready for operations, and work is underway to complete the road connectivity to Mizoram. The Indian government has invested Rs. 1,000 crore in developing the waterways, with other agencies responsible for road development.



Strategic and Economic Importance:

- **Reducing Dependence on the Siliguri Corridor:** The Siliguri Corridor is only 21 km wide and is vulnerable to blockades during conflicts or natural disasters. Kaladan offers an alternative route that reduces this dependence.
- **Less Reliance on Bangladesh:** Although Bangladesh has cooperated with India on transit, having an independent route through Myanmar strengthens India's logistical security.
- **Boosting Act East Policy:** The project supports India's Act East Policy, which aims to improve connectivity and economic integration with Southeast Asia.

- **Counterbalancing China:** China is developing the China-Myanmar Economic Corridor (CMEC). The Kaladan project helps maintain India's strategic presence in Myanmar and counters growing Chinese influence.
- **Economic Development:** The project is expected to transform the Northeast into a trade and business hub. Sectors such as manufacturing and agro-processing stand to benefit. Reduced travel time will also promote tourism and regional integration.

Other Connectivity Initiatives:

- **India-Myanmar-Thailand Trilateral Highway:** Connecting Manipur in India to Thailand via Myanmar.
- **Protocol on Inland Water Transit and Trade:** An agreement between India and Bangladesh that allows inland vessels to use each other's waterways.
- **Bangladesh-Bhutan-India-Nepal Motor Vehicle Agreement:** Facilitating regional road connectivity.
- **Use of Chattogram and Mongla Ports:** Agreements with Bangladesh to access key ports for cargo movement to the Northeast.

Conclusion:

The Kaladan Multimodal Transit Transport Project is a landmark infrastructure initiative that will significantly reshape India's Northeast. By providing an alternative route to the vulnerable Siliguri Corridor, it enhances national security and trade resilience. The project also aligns with broader strategic goals under the Act East Policy and serves as a counterbalance to regional geopolitical shifts.

India's Inequality at Historic Low

Context:

World Bank has placed India among world's Most Equal Societies. According to the World Bank, India's Gini Index stands at 25.5, making it the fourth most equal country in the world, after the Slovak Republic, Slovenia and Belarus.

The Gini Index is a simple yet powerful way to understand how income, wealth or consumption is equally distributed across households or individuals in a country.

Key Highlights:

- **Gini Index of 25.5:** India's Gini Index, a widely used measure of income inequality, stands at 25.5 for the year 2022–23. This places India in the “moderately low inequality” category and makes it the fourth-most equal country globally among 167 nations. For context, a Gini Index of 0 indicates perfect equality, while 100 represents absolute inequality.
- **Comparison with Other Countries:** India's score is significantly better than major economies such as China (35.7), United States (41.8), and United Kingdom. Only a small number of countries, mostly in Europe, have similar or lower inequality levels.
- **Sharp Poverty Reduction:** The report shows a dramatic fall in extreme poverty, measured by the share of the population living on less than USD 2.15 per day. This figure dropped from 16.2% in 2011–12 to just 2.3% in 2022–23.
- **171 million lifted from poverty:** Over the last decade, around 171 million people have exited extreme poverty, according to the World Bank data.
- **Progress over Time:** India's Gini Index has improved steadily, declining from 28.8 in 2011 to 25.5 in 2022, suggesting a consistent trend towards more equal income distribution.
- **Government Initiatives Credited:** The government attributes this progress to several targeted schemes aimed at improving financial access and livelihood security.

Notable programmes include:

- **Pradhan Mantri Jan Dhan Yojana (PM Jan Dhan Yojana):**
 - » Launched in 2014, this scheme aimed to bring every citizen into the formal banking system.
 - » Under the scheme, millions of bank

accounts have been opened with the provision of zero-balance accounts.

- » It significantly improved access to banking services, especially for rural populations, women, and socially disadvantaged groups.
- » By linking bank accounts with Aadhaar and mobile numbers, it laid the foundation of the JAM Trinity (Jan Dhan–Aadhaar–Mobile), enabling direct transfer of government benefits to beneficiaries.
- **Direct Benefit Transfer (DBT):**
 - » DBT transformed the traditional subsidy system, which suffered from middlemen and leakages.
 - » Benefits under LPG subsidy, scholarships, MGNREGA wages, old-age pensions, and various other schemes are now transferred directly into beneficiaries' bank accounts.
 - » It enhanced transparency, reduced corruption, and improved the efficiency of public expenditure.
 - » It also expanded the scope of social security, ensuring timely assistance to the poor and marginalized.
- **Ayushman Bharat Yojana (PM-JAY):**
 - » This is the world's largest public health insurance scheme, launched in 2018.
 - » It provides annual health insurance coverage of Rs.5 lakh per family.
 - » The scheme has enabled millions to access free treatment, significantly reducing out-of-pocket expenditure on healthcare.
 - » Through empanelled public and private hospitals, rural and urban poor have received quality medical services, thereby reducing economic disparity in healthcare access.
- **Stand-Up India:**
 - » The Stand-Up India scheme aims to provide bank loans (Rs.10 lakh to Rs.1 crore) to SC/ST and women entrepreneurs to promote self-employment.
 - » It has increased entrepreneurship

opportunities and encouraged youth to move beyond traditional jobs towards becoming business owners.

▪ **PM Vishwakarma Yojana:**

- » Launched in 2023, this scheme aims to integrate traditional artisans and craftsmen (like blacksmiths, carpenters, tailors, goldsmiths, etc.) into the formal economy.
- » It includes skill training, tool kits, digital transactions, marketing support, and easy loan facilities, which have led to increased local productivity and income.
- These schemes have not only reduced economic inequality but also brought significant improvements in financial inclusion, social security, healthcare, and self-employment.
- Their combined impact is moving India toward a more inclusive and equitable society. These initiatives are credited with reducing gaps in income and opportunity across regions and communities.

Conclusion:

The report reflects a clear trend of falling poverty and rising income equality. Sustaining this progress will require strong data, continuous social protection, and inclusive policies to ensure that growth benefits all sections of society.

Rise in remittance in 2025

Context:

Indians working overseas have sent back a record-breaking \$135.46 billion in remittances during the financial year 2024–25, marking a significant 14% increase over the previous year's figure of \$129.4 billion. The Reserve Bank of India (RBI) released the data under the "private transfers" category, emphasizing the growing economic contribution of the Indian diaspora to the country's economy.

A Key Factor for rising remittance:

- India's overseas workforce has expanded remarkably over the decades. The number

of Indians working abroad has tripled from 6.6 million in 1990 to 18.5 million in 2024. This surge has pushed India's share of the global migrant population from 4.3% to over 6%.

- A significant portion of Indian migrants—around 50%—are based in Gulf Cooperation Council (GCC) countries like the UAE, Saudi Arabia, and Qatar. The strong demand for Indian labor, especially in construction, services, healthcare, and IT, has contributed to sustained remittance flows from the region.

The Economic Significance of Remittances:

- Remittances play a crucial role in India's macroeconomic stability:
 - » They are vital for foreign exchange reserves, helping reduce the current account deficit.
 - » Remittances support millions of families, especially in states like Kerala, Uttar Pradesh, Bihar, and Punjab.
 - » The funds also boost local consumption and investment, indirectly supporting rural and urban economies.
- In FY25, remittances accounted for more than 10% of India's total foreign exchange inflows, underlining their importance.

Ups & Downs

Travel (\$Million)

Dec ('24)	1324
Jan ('25)	1647
Feb ('25)	1091
March ('25)	1126
April ('25)	1270



NOTE: Outward remittances under LRS

About Private Transfers in the Balance of Payments (BOP):

- In the BOP, private transfers refer to one-way (unilateral) transactions between individuals or non-governmental organizations across countries, with no exchange of goods, services, or financial assets in return. These include remittances, migrants' transfers, and gifts or donations.
- **Key Points:**
 - » **Unilateral in nature:** No reciprocal transaction occurs.
 - » **Private vs. Official:** Private transfers involve individuals or NGOs; official transfers involve governments.
 - » **Examples:** Money sent home by workers abroad, personal gifts, and funds moved during migration.
 - » **BOP Placement:** Recorded under the current account, within current transfers.

Countries that received the most remittances globally in 2024:

- India tops the list of recipient countries for remittances, followed by-
- Mexico: \$68 billion
- China: \$48 billion
- Philippines: \$40 billion
- Pakistan: \$33 billion

Looking Ahead:

- The continued rise in remittance inflows is a testament to the resilience and prosperity of the Indian diaspora, even amid global economic uncertainties. With increasing mobility, better earning opportunities abroad, and favorable policies, India is well-positioned to retain its global leadership in remittance receipts.
- However, to sustain this growth, experts recommend:
 - » Strengthening diplomatic and labor agreements with Gulf and Western countries.
 - » Reducing transaction costs and improving digital payment infrastructure.

- » Offering more investment avenues and financial products tailored for NRIs.

Conclusion:

The remittance story of FY25 underscores not just the economic value of India's diaspora but also the need to engage them more deeply in national development. With the right support structures, India can turn this financial flow into long-term capital for inclusive growth.

Employment Linked Incentive Scheme

Context:

The Union Cabinet has approved the Employment Linked Incentive (ELI) Scheme with an allocation of Rs. 99,446 crore to support employment generation, primarily in the manufacturing sector.

About the ELI scheme:

- The ELI Scheme was announced in the Union Budget 2024-25 as part of PM's package of five schemes to facilitate employment, skilling and other opportunities for 4.1 Crore youth with a total budget outlay of Rs 2 Lakh Crore.

Objective of the Scheme:

- To create over 3.5 crore jobs over two years.
- To provide direct financial support to first-time employees and employers hiring new workers.
- To formalize employment by bringing more workers under EPFO coverage.
- To strengthen manufacturing and labour-intensive industries through extended incentives.

Key Features of the Scheme:

- **Incentive to First-Time Employees:**
 - » First-time employees will receive one month's wage, up to Rs. 15,000, in two installments. Employees with salaries up to Rs.1 lakh will be eligible.
 - » Conditions to receive the incentive for employee:
 - Must be employed for at least

6 months to receive the first installment.

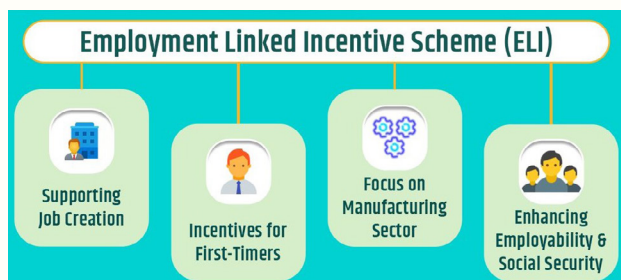
- Must complete 12 months of service and a financial literacy programme to receive the second installment.

▪ **Support to Employers:**

- » Employers will receive incentives for generating additional employment, with benefits extended for up to two years. For the manufacturing sector, incentives will be extended for another two years.
- » Minimum hiring criteria for employers:
 - Employers with fewer than 50 employees must hire at least two additional employees.
 - Employers with 50 or more employees must hire at least five additional employees.
 - The new hires must be retained for a minimum of 6 months.

- **Eligibility:** Jobs created between August 1, 2025, and July 31, 2027, will be eligible for the scheme's benefits.

- **Incentive Payment Mechanism:** Payments to first-time employees will be made through Direct Benefit Transfer (DBT) mode, while payments to employers will be made directly into their PAN-linked accounts.



Benefits and Impact:

- **Job Creation:** The scheme aims to create over 3.5 crore jobs in two years, with 1.92 crore beneficiaries being first-time employees.
- **Employability and Social Security:** The scheme will enhance employability and social security across all sectors, with a special focus on the manufacturing sector.
- **Formalization of Workforce:** The scheme

will formalize the country's workforce by extending social security coverage to crores of young men and women.

Conclusion:

The Employment Linked Incentive (ELI) Scheme is a transformative policy tool that blends employment promotion, formalisation, and youth empowerment. It reflects the government's commitment to not only create jobs but to ensure that they are secure, formal, and productive—especially in the manufacturing sector, a key pillar of India's economic strategy.

State of Food Security and Nutrition in the World (SOFI) 2025 report

Context:

The State of Food Security and Nutrition in the World (SOFI) 2025 report was released on July 28, 2025, by five UN agencies. This report presents a stark picture of global hunger and food insecurity. Although there has been modest improvement since 2022, progress remains uneven and insufficient to meet the Sustainable Development Goal (SDG) 2 target of Zero Hunger by 2030.

Key findings from the SOFI 2025 Report:

- 720 million people affected by chronic hunger in 2024 — 8.2% of the global population.
- A slight decline from 8.5% in 2023 and 8.7% in 2022, but still above pre-pandemic and 2015 levels.
- 2.3 billion people experienced moderate or severe food insecurity in 2024.
- Compared to 2015, the year the 2030 Agenda was adopted, 96 million more people suffer from hunger, and 683 million more face food insecurity.

Regional Breakdown

Region	Under-nourished Population (2024)	Key Trends
Asia	323 million	Largest number, but declining in South and Southeast Asia
Africa	307 million	Highest prevalence, with 1 in 5 people chronically hungry
Latin America & Caribbean	34 million	Slight decline in hunger observed

- Asia holds nearly half of the food-insecure population due to sheer population size.
- Africa remains most vulnerable in terms of percentage affected.

Future projection:

- 512 million people may be undernourished globally by 2030 (~6% of world population).
- Only 65 million fewer than in 2015 — indicating slow progress.
- Africa will remain the most affected region:
 - » Will house 60% of global undernourished population.
 - » 17.6% of its population will face chronic hunger.
- Asia and Latin America: Prevalence likely to fall below 5%.

Indian Context:

- As per SOFI, 55.6% of Indians cannot afford a healthy diet.
- High food inflation, post-COVID recovery, and climate events continue to burden low-income households.
- India faces a double burden of undernutrition and rising obesity, especially among children and women.

About the report:

- The State of Food Security and Nutrition in the World (SOFI) report is a flagship publication that tracks global progress

towards achieving food security and nutrition goals.

- It is published jointly by:
 - » Food and Agriculture Organization (FAO),
 - » International Fund for Agricultural Development (IFAD),
 - » United Nations Children's Fund (UNICEF),
 - » World Food Programme (WFP), and
 - » World Health Organization (WHO)
- The SOFI report provides critical insights into the state of food security and nutrition worldwide.

Key Objectives of the SOFI Report:

- The SOFI report tracks global progress towards achieving Sustainable Development Goal (SDG) 2, which aims to end hunger and ensure access to food for all people.
- The report monitors progress towards ending all forms of malnutrition, including undernutrition, micronutrient deficiencies, and overweight and obesity.
- The SOFI report provides crucial inputs for global policy discussions, humanitarian and development planning, and national nutrition strategies.

Conclusion:

With less than 5 years left for the 2030 SDG deadline, accelerated action, targeted investment, and inclusive policies are crucial to ensure that "Zero Hunger" does not remain a distant dream.

World Bank Report on Indian Cities

Context:

A recent report by the World Bank "Towards Resilient and Prosperous Cities in India", highlights the critical role Indian cities will play in driving economic growth and job creation. This report was developed in collaboration with the Union Ministry of Housing and Urban Affairs.

Key Highlights of the Report:

- **Urban Growth and Economic Significance**
 - » India's urban population is projected to double to 951 million by 2050.
 - » By 2030, urban areas will contribute 70% of new job creation.
 - » Cities will be central to India's economic transformation, but only if they are equipped to handle climate-related challenges.
- **Rising Climate Risks- Flooding and Heat:**
 The report identifies two critical shocks threatening urban India:
 - » **Pluvial Flooding (urban flooding due to heavy rainfall and poor drainage):**
 - Annual losses may reach \$5 billion by 2030, and \$30 billion by 2070.
 - Contributing factors include unchecked urbanization, loss of natural drainage, and over-concretization of urban spaces.
 - » **Extreme Heat Stress & Urban Heat Islands:**
 - Exposure to dangerous heat stress has increased by 71% (from 1983–1990 to 2010–2016).
 - By 2050, heat-related deaths could double to over 3 lakh annually.
 - The urban heat island effect – where cities become significantly hotter than surrounding rural areas due to heat-trapping infrastructure – compounds the risk.
- **Cost of Inaction vs. Investment Needs:**
 - » To build climate-resilient urban infrastructure, Indian cities will need to invest \$2.4 trillion by 2050.
 - » A minimum investment of \$150 billion over the next 15 years is required just to support 60% of high-risk cities with flood resilience.

Recommendations from the Report:

- **At the National and State Level:**
 - » Strengthen policy and legal frameworks to empower urban governments.
 - » Develop a national financing roadmap to support resilience infrastructure.
 - » Boost private sector engagement and develop Public-Private Partnerships (PPPs).
- » Enhance municipal capacity-building and improve urban governance standards.
- **At the City Level:**
 - » Conduct risk evaluations and climate vulnerability assessments.
 - » Mobilize private and public capital to fund adaptation and mitigation projects.
 - » Implement nature-based solutions like urban greening, wetlands restoration, and stormwater management.
 - » Adopt heat mitigation strategies like:
 - Cool roofing
 - Urban green cover
 - Early warning systems
 - Adjusting working hours to avoid peak heat

Conclusion:

The World Bank report highlights the critical need for Indian cities to invest in climate resilience and adaptation measures to mitigate the impacts of climate change. By providing greater autonomy to cities and implementing the report's recommendations, India can reduce the economic losses and health risks associated with climate change and ensure sustainable and prosperous urban development

India Emerges as Global Leader in Fast Payments

Context:

The International Monetary Fund's (IMF) report, "Growing Retail Digital Payments: The Value of Interoperability," recently highlighted India's remarkable digital transformation, with a particular focus on the Unified Payments Interface (UPI).

UPI's Rapid Growth:

- **India's Digital Transactions:** UPI accounts for 85% of all digital transactions in India, making it a dominant force in the country's digital payment landscape.
- **Global Real-Time Digital Payments:** UPI powers nearly 50% of all real-time digital payments globally, solidifying its position as

a leader in fast payments worldwide.

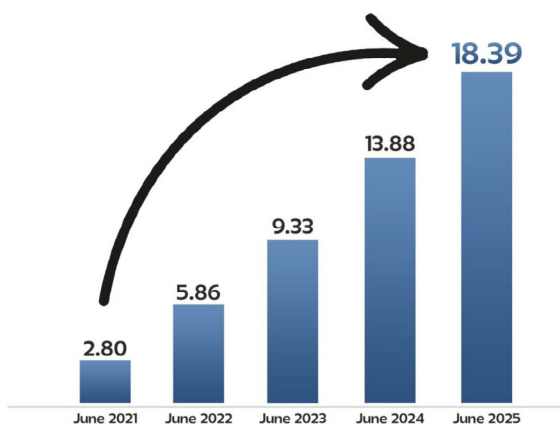
- **Transaction Volume:** In June 2025, UPI processed 18.39 billion transactions, valued at over Rs. 24.03 lakh crore, representing a 32% year-on-year growth.
- **Daily Transactions:** UPI handles over 640 million transactions daily, surpassing global giants like Visa, which processes around 639 million transactions per day.

UPI's Impact on Financial Inclusion:

- UPI now serves 491 million individuals and 65 million merchants, seamlessly connecting 675 banks through a unified digital infrastructure.
- By providing a fast, accessible, and affordable mode of payment, UPI has significantly advanced financial inclusion, especially in rural and small-town areas, bringing digital financial services to the doorstep of millions.

Growth in UPI Transaction Volume

(In Billions)



Source: National Payments Corporation of India (NPCI)

Global Expansion:

- UPI is currently live in seven countries, including the UAE, Singapore, Bhutan, Nepal, Sri Lanka, France, and Mauritius, helping expand India's digital payment ecosystem globally.
 - » The launch of UPI in France signifies its formal entry into Europe, enabling Indians traveling or living abroad to make

convenient, seamless transactions.

- » India is also pushing for UPI to be adopted as a standard payment system within the BRICS group, which would help enable faster, cheaper, and more secure cross-border payments, further enhancing India's position as a global leader in digital finance.

About UPI:

- UPI (Unified Payments Interface) is a real-time digital payment system developed by the National Payments Corporation of India (NPCI) and regulated by the Reserve Bank of India (RBI).
 - » Launched on April 11, 2016, UPI allows users to instantly transfer money between bank accounts using a mobile device through a simple, two-click authentication process.
 - » UPI simplifies transactions by using virtual payment addresses (VPAs) such as a UPI ID, mobile number, or QR code instead of traditional account numbers.
 - » It eliminates the need to enter sensitive bank details for every transaction. Users can perform peer-to-peer (P2P) and peer-to-merchant (P2M) payments, schedule future transfers, and make recurring payments like utility bills or school fees — all with a single UPI PIN and 24/7 availability.

Conclusion:

UPI's success is a testament to India's digital innovation and vision for inclusive growth. As a global benchmark in public digital infrastructure, UPI is poised to continue its rapid growth and expansion, both domestically and internationally. With its convenience, speed, and accessibility, UPI has revolutionized digital payments in India and is set to make a significant impact globally.



Internal Security

India's Defence Sector Transformation: Towards Self-Reliance, Innovation, and Global Competitiveness

Context:

India's defence sector is undergoing a historic transformation. Rising security challenges, the need for technological superiority, and the ambition to reduce import dependence have all contributed to this shift. At the recent Controllers' Conference 2025, officials outlined reforms to speed up procurement, strengthen domestic manufacturing, and improve financial agility. Over the past few years, the government has launched wide-ranging reforms to build indigenous capabilities, speed up procurement, and create an ecosystem where private companies, start-ups, and MSMEs can play a major role.

- ❖ This transformation has been driven by:
 - » Growing geopolitical tensions and the lessons from Operation Sindoor.
 - » A renewed focus on self-reliance under the Atmanirbhar Bharat initiative.
 - » The recognition that defence spending can drive economic growth and innovation.
 - » The rise in global military expenditure (now over \$2.7 trillion)

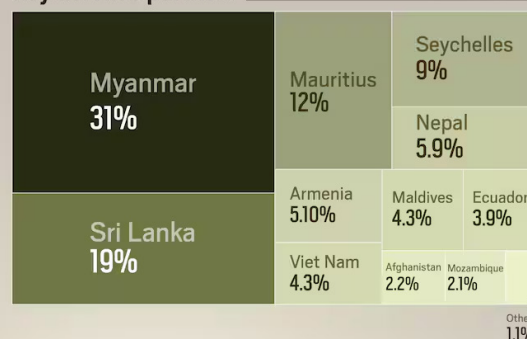
Budgetary Outlay and Economic Significance:

- ❖ The Union Budget 2025-26 allocated an unprecedented Rs. 6.81 lakh crore (US\$ 78.7 billion) to the Ministry of Defence, marking a 9.5% year-on-year increase. This includes:
 - » Capital expenditure of Rs. 1.80 lakh crore (US\$ 20.8 billion) dedicated to procuring new weapons, warships, aircraft, and modern equipment.

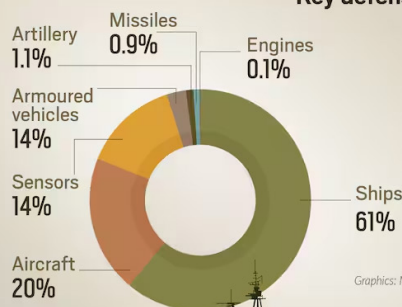
- » Rs. 7,146 crore (US\$ 825.7 million) set aside specifically for the Border Roads Organization (BRO), critical for building infrastructure in strategic areas.
- ❖ This budget reflects the importance placed on operational readiness, infrastructure expansion, and technological upgrades.

Where do India's Defense Exports Go?

Key defense partners



Key defense exports



Source: SIPRI
Graphics: Mudita Singh & Subham Singh



Market Size and Global Standing:

- ❖ According to the Global Power Index, India's

defence sector ranks fourth globally in firepower, with a score of 0.0979 (closer to 0 means higher strength).

❖ Key targets and milestones:

- » **Defence manufacturing target:** Rs. 3,00,000 crore (US\$ 34.7 billion) by FY29.
- » **Defence exports:** Crossed Rs. 21,000 crore (US\$ 2.43 billion) in 2024, with a target of Rs. 50,000 crore (US\$ 5.8 billion) by 2029.
- » India now exports to more than 75 countries and has moved up the ranks as a defence exporter, compared to its position in 2019 as the 19th largest.

❖ This export growth—334% in five years—shows the growing global trust in India's defence manufacturing capabilities.

Recent Investments and Industrial Developments:

- ❖ India's defence sector is attracting significant investments from Indian conglomerates, foreign companies, and start-ups:
 - » **Rolls-Royce:** Plans to greatly increase sourcing of aerospace and defence components from India over the next five years.
 - » **TechEagle:** Will invest Rs. 100 crore (US\$ 11.6 million) over three years to expand drone manufacturing for public safety and disaster relief.
 - » **JSW Defence:** Committed Rs. 800 crore (US\$ 92.4 million) to set up drone production in Telangana.
 - » **Paras Defence & Space Technologies:** Announced a Rs. 12,000 crore (US\$ 1.39 billion) investment to establish India's first Optics Park in Maharashtra, rolling out between 2028 and 2035.
 - » **TATA Aircraft Complex:** Launched India's first private sector final assembly line for military aircraft in Vadodara. The facility will manufacture 40 C-295 transport aircraft domestically after initial imports.
 - » **Bharat Electronics Ltd (BEL):** Partnered with IIT Delhi to translate naval Deep

Tech research into products.

- » **Green Propulsion System:** A Bengaluru start-up, Bellatrix Aerospace, successfully tested an eco-friendly propulsion system on ISRO's PSLV C-58 mission—showcasing innovation in dual-use technology.

Indigenisation and Policy Reforms:

- ❖ To further reduce imports, the government notified the fifth Positive Indigenisation List (PIL), comprising 346 items, including:
 - » Line Replacement Units
 - » Sub-systems and components
 - » Raw materials with an import substitution value of Rs. 1,048 crore (US\$ 126.57 million)
- ❖ This complements earlier policies encouraging private sector and start-up participation.

Procurement Reforms and Faster Acquisition:

- ❖ India has historically struggled with long procurement cycles—averaging 5–6 years for major equipment. Recognising this, new policies aim to compress timelines and improve transparency:
 - » **Rafale Marine Aircraft Procurement:** Completed in just 24 months, showcasing a model for faster acquisitions.
 - » **Defence Acquisition Procedure (DAP) 2025:** Under preparation to replace DAP 2020, with focus areas including:
 - Simplified documentation.
 - Field trial compression.
 - Open tenders rather than nominations.
 - Clear timelines to give industry better visibility.
- ❖ **Emergency procurement:** Now accounts for around 15% of the budget to ensure readiness during crises.
 - » This framework will encourage industry to invest in capacities without fear of delays.

Private Sector and Start-up Participation:

- ❖ The transformation in India's defence

sector strongly emphasises expanding beyond public sector undertakings. Notable examples:

- » Private companies were rapidly mobilised to three-shift production following the Pahalgam terror attack.
 - » Public-private models where DRDO leads R&D and private firms take over production (e.g., Bharat Forge manufacturing DRDO-designed carbines).
 - » Start-ups supported under the Technology Development Fund (TDF), which has awarded new projects in drones, sensors, and propulsion technologies.
- ❖ This approach creates a broader, more resilient defence ecosystem.

Export Promotion and Global Integration:

- ❖ India aims to become a credible exporter of defence hardware.
- ❖ **Highlights:**
 - » Exporting to over 75 countries, with strong demand for ammunition, small arms, and drone systems.
 - » Defence import value relatively stable at US\$ 463–469 million, indicating a shift towards domestic production.
 - » Plans to reach US\$ 5 billion exports within five years.
- ❖ Exports not only boost revenues but also strengthen diplomatic ties and build India's strategic profile.

Digital Platforms and Financial Modernisation:

- ❖ To improve transparency and efficiency, digital tools have been adopted widely:
 - » **Government e-Marketplace (GeM):** Rs. 2 lakh crore in procurements processed.
 - » **SPARSH:** Pension services extended to 32 lakh retired personnel.
 - » **Comprehensive Pay System and Centralised Database:** Under development to modernise payroll and data management.
- ❖ These platforms ensure accountability and faster service delivery.

Fiscal Discipline and Budget Utilisation:

- ❖ Fiscal discipline remains a cornerstone of reforms:
 - » Full capital budget utilisation in FY25.
 - » Spending till May-end of FY26 at 14% of the total Rs. 1.8 lakh crore capex budget, compared to just 4% the previous year.
 - » The Ministry of Finance has assured no constraints on capital spending if additional requirements arise.
- ❖ These measures keep equipment modernisation on track and avoid unspent allocations.

Focus on Dual-use Technologies and Innovation:

- ❖ The government recognises that defence investments also strengthen civilian industries:
 - » Start-ups like Bellatrix Aerospace have created propulsion systems with civilian and military applications.
 - » The Defence Research and Development Organisation has awarded seven projects in 2024 to develop indigenous technologies.
- ❖ This dual-use approach ensures efficient utilisation of resources and accelerates innovation.

Conclusion:

India's defence sector is rapidly transforming into a modern, agile, and self-reliant ecosystem. With record budget allocations, streamlined procurement, and expanded private participation, the country is building the foundation for technological leadership and operational readiness. The journey is not without challenges. Compressed timelines, indigenisation targets, and fiscal discipline require careful planning and collaboration. But the trajectory is clear: India aims to become not just a major consumer but also a significant exporter of advanced defence systems. Through these efforts, the defence sector is set to drive economic growth, enhance national security, and showcase India's capabilities on the world stage.

Short Issues

Astra Missile with Radio Frequency Seeker

Context:

The Defence Research and Development Organisation (DRDO) and the Indian Air Force (IAF) have recently conducted the flight-test of the indigenous Beyond Visual Range Air-to-Air missile (BVRAAM) 'Astra' equipped with an indigenous Radio Frequency (RF) Seeker.

About Astra Beyond Visual Range Air-to-Air Missile (BVRAAM)

- Astra is India's first indigenous Beyond Visual Range Air-to-Air Missile (BVRAAM) designed to engage enemy aircraft beyond line-of-sight.
- Developed by the Defence Research and Development Organisation (DRDO) in partnership with the Indian Air Force (IAF) and Hindustan Aeronautics Limited (HAL), Astra is a key strategic missile system integrated on fighter aircraft like the Su-30 MKI.

Key Features of Astra Missile

- **Strike Range:** Capable of hitting aerial targets over 100 km away, making it a long-range engagement weapon.
- **Radio Frequency Seeker:** Equipped with a fully indigenous RF seeker, enhancing target lock-on capabilities in diverse conditions.
- **High Manoeuvrability:** Designed for high-speed interception, even against agile fighter jets or UAVs.
- **Guidance System:** Uses a state-of-the-art navigation and mid-course correction system, ensuring pinpoint accuracy.
- **Versatility:** Compatible with multiple fighter platforms, including Tejas, Mirage-2000, and MiG-29 (planned upgrades).

Significance of Astra Missile:

- **Strategic Self-Reliance:** Strengthens India's indigenous capability under Atmanirbhar Bharat in Defence, reducing dependence on foreign technologies.
- **Reduces Import Dependency:** Eliminates

the need for foreign BVRAAMs like Meteor or AMRAAM, saving foreign exchange and boosting local R&D.

- **Force Multiplier:** Enhances IAF's air dominance in hostile airspace, especially in high-threat zones like the Line of Actual Control (LAC) or Line of Control (LOC).



Impact on Indian Defence:

- **Enhanced Air Defence Capabilities:** Astra's integration with Indian fighter jets will significantly enhance the country's air defence capabilities.
- **Boost to Indigenous Defence Industry:** The development and production of Astra will promote India's indigenous defence industry, creating opportunities for local manufacturers and researchers.
- **Deterrent Capability:** Astra's long-range engagement capability will serve as a deterrent to potential adversaries, enhancing India's strategic posture in the region.

Conclusion:

The successful test of Astra Missile with Radio Frequency Seeker marks a significant milestone in India's defence capabilities, showcasing self-reliance in critical technologies and enhancing

IAF's air dominance.

Navy commissioned INS Nistar

Context:

On July 18, the Indian Navy commissioned INS Nistar at the Naval Dockyard in Visakhapatnam, marking a major milestone in India's deep-sea rescue capabilities. Built indigenously by Hindustan Shipyard Limited, Nistar is one of two Diving Support Vessels (DSVs) designed to conduct complex underwater rescue missions, particularly of trapped submariners.

Key Features of INS Nistar:

- A specialized diving complex with both air and saturation diving systems
- Remotely Operated Vehicles (ROVs) and side-scan SONARs for underwater detection
- A 15-tonne subsea crane for lifting equipment and aiding rescue
- Onboard hospital facilities including an ICU, operation theatre, and hyperbaric medical units for treating divers and rescued personnel
- A DSRV mothership role, enabling immediate launch and recovery of the rescue submersible

Strategic Significance:

- **Enhanced Operational Preparedness:** Nistar and its sister ship Nipun will significantly enhance India's operational preparedness in the underwater domain, allowing for rapid deployment and response to emergencies.
- **Maritime Security:** The induction of Nistar reinforces India's strategic maritime posture across the IOR, positioning the country as a credible first responder in undersea contingencies.
- **International Cooperation:** India has committed to sharing its submarine rescue expertise and providing actual rescue support during emergencies worldwide, amplifying its soft power through maritime goodwill.

Impact on Maritime Safety:

- **Rapid Deployment:** Nistar's high transit speed ensures rapid deployment during emergencies, reducing response time in critical situations.
- **Humanitarian Assistance and Disaster Relief:** The vessel's capabilities will be crucial in various maritime humanitarian assistance and disaster relief (HADR) operations carried out by the Navy.
- **Global Maritime Safety:** With Nistar, India is better equipped to serve the greater good of global maritime safety, aligning with its growing naval capabilities and shared security interests with partners and neighbors



DIVING CAPABILITY

Saturation diving up to
300 M
 Depth

Side diving stage up to
75M

Conclusion:

As underwater operations become more complex and high-risk, INS Nistar ensures India is ready to respond—quickly, effectively, and compassionately. Whether it's rescuing submariners, supporting humanitarian operations, or aiding other nations in distress, Nistar stands as a guardian beneath the waves, reaffirming India's commitment to global

maritime safety.

Government Approves Defence Acquisition to enhance Indigenous Capabilities

Context:

In a landmark move aimed at strengthening India's self-reliance in defence manufacturing, the Defence Acquisition Council (DAC), chaired by Defence Minister Rajnath Singh, recently cleared capital acquisition proposals worth approximately Rs.1.05 lakh crore.

Equipment to be procured under the proposal:

- The proposals span across all three services – Army, Navy, and Air Force – and include both land and maritime systems. The following key equipment will be procured:
 - » **Armoured Recovery Vehicles (ARVs):** Critical for armoured corps logistics and battlefield mobility.
 - » **Electronic Warfare Systems:** Enhancing surveillance, electronic attack, and countermeasure capabilities.
 - » **Integrated Common Inventory Management System (ICIMS):** A tri-services initiative to optimize logistics, inventory control, and resource management.
 - » **Surface-to-Air Missiles (SAMs):** Bolstering air defence networks with quicker response and improved targeting.

Naval Modernisation & Maritime Security:

- Recognizing emerging threats in the maritime domain, several key procurements have also been cleared to boost the Indian Navy's capabilities:
 - » **Moored Mines:** Essential for strategic denial and area control in coastal zones.
 - » **Mine Counter Measure Vessels (MCMVs):** Specialized vessels for detecting and neutralizing naval mines.
 - » **Super Rapid Gun Mounts (SRGMs):** Advanced naval guns for anti-air and anti-surface operations.

- » **Submersible Autonomous Vessels:** Unmanned systems capable of underwater surveillance and reconnaissance.

- These acquisitions are particularly critical given the increasing geopolitical competition and challenges in the Indo-Pacific region.



DEFENCE ACQUISITION COUNCIL APPROVALS

Enhancing Operational Capability of Armed Forces

AC approved defence deals worth ₹67,000 crore

Aimed at boosting armed forces' operational capability

Focus on indigenisation and modernisation

Other approved project in recent times:

- This latest announcement comes on the heels of several major defence procurement clearances:
 - » **March 2025:** The Cabinet Committee on Security approved India's largest-ever helicopter deal — Rs. 62,700 crore for 156 Light Combat Helicopters (LCH), Prachand, developed by Hindustan Aeronautics Ltd. (HAL).
 - » **June 2025:** The Defence Ministry moved forward with a Rs. 30,000 crore plan for three regiments of the indigenously developed Quick Reaction Surface-to-Air Missile (QR-SAM) system for the Indian Army.

Strategic Significance:

- The Defence Ministry's continued emphasis on domestic procurement carries multiple strategic benefits:

- » **Enhanced Self-Reliance:** Reduces dependence on foreign suppliers and boosts national security.
- » **Industrial Growth:** Provides a major impetus to Indian defence manufacturers, MSMEs, and start-ups involved in R&D and production.
- » **Technology Development:** Encourages innovation and capacity building in defence electronics, weapons systems, and autonomous platforms.
- » **Employment Generation:** Large-scale procurement and production translate to job creation and skill development across defence corridors.

Conclusion:

India's defence acquisitions in 2025 reflect a clear strategic trajectory — self-reliance, modernization, and regional power projection. As the government continues to back indigenous platforms like the Prachand LCH and QR-SAM, and now adds over Rs. 1 lakh crore worth of systems through Indian vendors, the coming years are likely to see India emerge as a significant global defence manufacturing power.

Maoist Surrender in Chhattisgarh

Context:

22 Maoists with a cumulative bounty of Rs. 37.5 lakh surrendered before security forces in Chhattisgarh's Narayanpur district on July 11, 2025. The Maoists, active in the Abhujmad forest region, belonged to the Kutul, Nelnar, and Indravati area committees of CPI (Maoists) Maad division. This is major achievement under the banner "Naxalmukt Bharat Abhiyan" targets complete elimination by March 31, 2026.

About Left Wing Extremism (LWE) in India:

- Left Wing Extremism (LWE), also known as Naxalism, is a significant internal security challenge in India. The movement, rooted in socio-economic inequalities and fueled by Maoist ideology, has historically affected

remote, underdeveloped, and tribal-dominated regions.

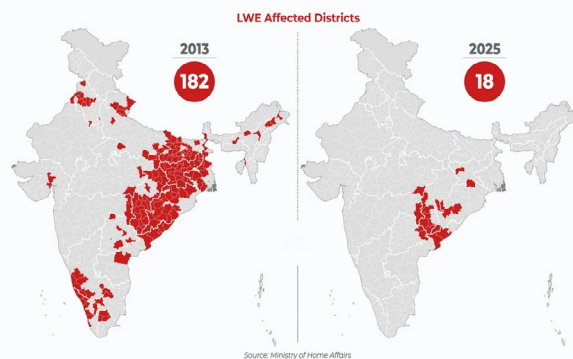
- LWE is ideologically driven by Maoist principles, advocating for armed struggle to overthrow the state and address socio-economic disparities. The movement originated from the 1967 Naxalbari uprising in West Bengal.
- LWE primarily affects the "Red Corridor," encompassing states like Chhattisgarh, Jharkhand, Odisha, Andhra Pradesh, Telangana, Maharashtra, and parts of Madhya Pradesh.

Causes and Impact:

- **Socio-economic inequalities:** LWE is driven by disparities in income, education, and healthcare, particularly in rural and tribal areas.
- **Maoist ideology:** The movement aims to overthrow the Indian state through armed rebellion and parallel governance structures.
- **Violence and instability:** LWE has resulted in significant violence, displacement, and instability in affected areas.

Combating Left-Wing Extremism With An Iron Fist

This is major achievement under the banner "Naxalmukt Bharat Abhiyan" targets complete elimination by March 31, 2026.



Government Strategy:

- **National Policy and Action Plan (2015):** A multi-pronged strategy combining security enforcement, development interventions,

and community engagement.

- **Security-related measures:** Deployment of Central Armed Police Forces (CAPFs), setting up of Counter Insurgency and Anti-Terrorism (CIAT) schools, and modernization of state police forces.
- **Development initiatives:** Expansion of road network, improvement of telecommunication connectivity, skilling, and financial inclusion.

Achievements:

- **Reduction in LWE-affected districts:** From 126 districts in April 2018 to 38 districts in April 2024.
- **Decline in violence:** Incidents of violence have reduced by 81% since 2010, with 374 incidents reported in 2024.
- **Surrenders and neutralization:** Over 8,000 Naxalites have surrendered in the last 10 years, and 90 Naxalites were killed, 104 arrested, and 164 surrendered in 2024.

Conclusion:

This surrender is more than a tactical victory—it is a testament to the success of our inclusive approach, blending force with reform and outreach with opportunity." With the Chhattisgarh government and central forces continuing their dual strategy of security enforcement and socio-economic upliftment, the vision of a "Naxalmukt Bharat" by March 2026 is increasingly within reach.

Cyber Fraud of Rs.1,000 Crore per Month Targeting Indians

Context:

Indians are losing an average of Rs. 1,000 crore every month to cyber frauds orchestrated from Southeast Asia, according to a new analysis by the Ministry of Home Affairs (MHA). The scams, traced largely to Cambodia, Myanmar, Laos, Vietnam, and Thailand, are reportedly being operated from heavily guarded compounds controlled by Chinese-speaking cybercrime syndicates.

Key Highlights:

- The analysis revealed three main categories of fraud being operated from Southeast Asia:
 - » **Stock trading and investment scams:** Promising high returns through fake platforms.
 - » **Digital arrest scams:** Impersonating government or law enforcement officials to extort money.
 - » **Task-based and investment-based scams:** Enticing users with jobs or tasks that lead to monetary losses.

Systemic Gaps highlighted:

- Following earlier estimates that Indians lost Rs 500 crore in cyber scams in just six months before March 2025, the Centre formed an inter-ministerial task force to identify systemic vulnerabilities.
- The panel uncovered gaps in banking systems, immigration processes, and telecom infrastructure, prompting action from the Central Bureau of Investigation (CBI).
- The CBI has already filed FIRs against PoS agents for issuing ghost SIM cards, which are commonly used in scam operations.

Major initiatives taken by the Indian government to enhance cybersecurity:

The Indian government has launched multiple initiatives to strengthen cybersecurity infrastructure and awareness. Key initiatives include:

- **National Cyber Security Policy:** A strategic framework to create a secure cyberspace for citizens, businesses, and government entities by enhancing resilience, capabilities, and coordination.
- **Cyber Surakshit Bharat Initiative:** Aims to raise cybersecurity awareness among Chief Information Security Officers (CISOs) and government IT staff through training and best practices.
- **Indian Cyber Crime Coordination Centre (I4C):** A dedicated framework to handle cybercrime through seven specialized components, including threat analytics, reporting portals, and training centres.

- **Cyber Swachhta Kendra:** A botnet cleaning and malware analysis centre that alerts and assists users in protecting their systems from infections.
- **CERT-In (Computer Emergency Response Team – India):** The national nodal agency for responding to cybersecurity incidents and issuing alerts and advisories.
- **National Critical Information Infrastructure Protection Centre (NCIIPC):** Focused on protecting critical sectors like power, banking, telecom, and transport from cyber threats.
- **Defence Cyber Agency (DCyA):** A tri-service body under the Indian Armed Forces to manage offensive and defensive cyber operations, including surveillance and countermeasures.

Conclusion:

The growing threat of cyber frauds originating from Southeast Asia is a significant concern for India. The government is taking steps to combat this issue, including collaborating with international partners and tracking down scam compounds. However, more needs to be done to prevent these scams and protect citizens from falling victim.

India-US Javelin Co-Production

Context:

India has formally submitting a request to the United States for the co-production of Javelin anti-tank guided missiles (ATGMs) under the "Make in India" initiative. This move aims to enhance indigenous defence capabilities, reduce dependency on foreign suppliers, and strengthen defence indigenisation.

About Javelin ATGM:

- The Javelin is a third-generation, fire-and-forget anti-tank guided missile jointly developed by Raytheon and Lockheed Martin in the United States.
- It uses infrared imaging for guidance and has a top-attack capability, making it highly

effective against modern tanks.

- The missile's lightweight and portable design makes it suitable for Indian Army operations in difficult terrains like the Himalayas.

Strategic Importance for India:

- The co-production of Javelin missiles is critical for India, particularly in light of threats posed by China and Pakistan. Enhancing India's anti-tank warfare capabilities will provide a significant boost to its defence preparedness.
- The Javelin missile system has proven its effectiveness in combat, particularly in the Ukraine-Russia conflict, where it has been used to destroy Russian tanks.

ABOUT JAVELIN MISSILE

- It is an American-made, man-portable, anti-tank guided missile.
- It is developed and produced jointly by American defence majors Raytheon and Lockheed Martin.
- It was designed to defeat heavily armored vehicles such as main battle tanks and lighter-skinned military vehicles.
- It first entered service with the U.S. military in 1996.

#PARHAMNEWSANALYSIS



Benefits of Co-Production:

- The co-production of Javelin missiles will not only enhance India's defence capabilities but also-
 - » **Reduce Dependency on Foreign Suppliers:** Indigenous co-production will reduce India's reliance on foreign support and ensure operational readiness.
 - » **Support "Make in India" Initiative:** The co-production deal aligns with the

government's "Make in India" initiative, aimed at strengthening local defence production and minimizing reliance on foreign suppliers.

- » **Deepen Indo-US Defence Ties:** The co-production deal will strengthen defence cooperation between India and the US, paving the way for collaborative advancements in defence technologies.

Conclusion:

The talks between India and the US are reportedly in advanced stages, with emergency procurement of Javelin missiles likely in the interim. The co-production deal will involve technology transfer, domestic manufacturing, and testing of the missiles in India. This move is expected to significantly bolster India's anti-tank warfare capacity and reduce reliance on external suppliers during emergencies.

INS Tamal

Context:

INS Tamal, a stealth multi-role frigate, was recently commissioned into the Indian Navy on July 1, 2025, at the Yantar Shipyard in Kaliningrad, Russia. It is the second vessel in the Tushil-class, an advanced series based on the earlier Talwar and Teg-class frigates. Built under the longstanding India-Russia defence cooperation, the ship represents a modern upgrade in India's maritime combat capability and strategic presence.

Key Features:

- INS Tamal is built with stealth technology to reduce radar visibility, enhancing survivability during high-risk missions.
- It is armed with a powerful array of weaponry, including BrahMos supersonic cruise missiles, vertically launched surface-to-air missiles (VL-SAMs), a 100mm main gun, 30mm Close-In Weapon Systems (CIWS), anti-submarine rocket launchers, and heavyweight torpedoes.
- The ship also supports the deployment of Kamov-28 and Kamov-31 helicopters for

anti-submarine warfare and early warning operations.

- Technologically advanced, it features network-centric warfare capabilities and an electronic warfare suite that allows integrated operations in complex naval environments.
- With a displacement of 3,900 tonnes, a length of 125 meters, and a maximum speed of 30 knots, INS Tamal balances speed, agility, and firepower.
- Additionally, 26% of its components are indigenously sourced, including the BrahMos missile system and HUMSA-NG sonar, supporting India's goal of defence self-reliance.

Strategic Importance:

- The induction of INS Tamal strengthens India's maritime posture, particularly in the Arabian Sea, by enhancing its ability to defend sea lanes, secure trade routes, and respond to regional threats.
- As part of the Western Fleet, the ship adds to India's blue-water naval capabilities, enabling extended deployments and rapid-response operations across the Indian Ocean region.
- This commissioning also underlines the depth of the India-Russia strategic partnership, which has produced 51 naval vessels over 65 years.
- Furthermore, it supports national initiatives like Aatmanirbhar Bharat and Make in India, encouraging greater domestic defence production.

Conclusion:

INS Tamal represents a significant leap in the Indian Navy's modernization journey. Its combination of stealth, speed, and superior weapon systems makes it a formidable asset for national defence. By bridging foreign collaboration and indigenous innovation, INS Tamal not only boosts India's maritime capabilities but also reaffirms its ambition to be a major naval power in the Indo-Pacific region.

UAE's nomination-based golden visa scheme

- The United Arab Emirates (UAE) has launched a new nomination-based golden visa scheme for citizens of India and Bangladesh, under which lifelong residence will now be available without any investment. For this, only AED 1,00,000 (about Rs. 23.3 lakh) will have to be paid. This initiative is to attract professionals who are notable in the field of talent, innovation or expertise.
- **About Golden Visa:**
 - » The Golden Visa is a long-term residence visa introduced by UAE in 2019. It is generally given to those who make outstanding contributions to real estate, business, science, medicine, arts or education.
 - » Under the new scheme, the investment requirement has now been removed, allowing more eligible individuals to take advantage of this facility.
 - » The main features of this visa include lifetime residence, strict background checks (such as money laundering or criminal record review), and the facility of visa with family.
 - » This allows the holder to work freely in the UAE and also hire domestic staff. This policy is part of the UAE's strategy to attract global talent.

Indian Institute of Creative Technologies campus inaugurated

- The first campus of the Indian Institute of Creative Technologies (IICT) was launched at the National Film Development Corporation (NFDC) campus in Mumbai. The campus was inaugurated by Union Minister Ashwini Vaishnaw.
- IICT has been set up keeping in mind the need of the fast-growing AVGC-XR (animation, visual effects, gaming, comics and extended reality) sector in India.
- Globally, the sector was worth over \$366 billion in 2021. Although India's share is currently less than 1%, it is likely to grow tremendously in the coming years.
- Industry estimates peg India's AVGC-XR market at \$26 billion by 2030, driven by the growing demand for immersive content, interactive media, and digital storytelling.
- Karnataka, already considered India's IT hub, is emerging as a leader in the AVGC-XR space as well. The state government's favourable policies and infrastructure are attracting investments and talent. To ensure industry-relevant skill development, IICT has partnered with global companies such as Google, Meta, NVIDIA, Microsoft, Apple, Adobe and WPP who are helping to design curriculum and provide technical support.

Indigenous Pollution Control Vessel 'Samudra Pracheta'

- On 23 July 2025, the second and last indigenous pollution control vessel 'Samudra Pracheta' built by Goa Shipyard Limited (GSL) for the Indian Coast Guard (ICG) was launched in Goa. This ship is built with 72% indigenous material under the Atmanirbhar Bharat Abhiyan.
- This ship, 114.5 meters long and with a load capacity of 4,170 tonnes, is specially designed to deal with oil spills and marine pollution in India's Exclusive Economic Zone (EEZ). It will be manned by 14 officers and 115 sailors.
- It has two side-sweeping arms to collect oil from the sea, modern radar system, different equipment for oil of different viscosities, pumps and analysis facilities of polluted water and special oil tanks. 'Samudra Pracheta' is an important achievement towards strengthening India's maritime security, environmental protection and technological self-reliance.

Hydrogen-powered train project

- Indian Railways has successfully tested its first hydrogen-powered coach at the Chennai-based Integral Coach Factory (ICF). The project is a major step towards reducing greenhouse gas emissions and promoting renewable energy. The Rs.136 crore project is being executed by Northern Railway while the design and testing is the responsibility of RDSO.
- A 3,000 kg hydrogen storage facility is being set up at Jind in Haryana, which will enable the train to cover a distance of 356 km between Jind and Sonipat. The train will be able to carry over 2,600 passengers.
- Equipped with hydrogen fuel cell technology, the train will be powered by 220 kg of hydrogen stored at 350 bar pressure in special cylinders. It will have modern safety features like leak detection, fire and temperature sensors, ventilation system.
- CFD studies have been carried out to ensure safety and German agency TUV-SUD has been appointed for third-party safety audit.

Renowned economist Lord Meghnad Desai passed away

- On 29 July 2025, renowned economist and member of the House of Lords of Britain, Lord Meghnad Desai passed away at the age of 85. Prime Minister Narendra Modi expressed deep condolences on his demise, describing him as the bridge of India-UK relations.
- Born in Vadodara, Desai received a PhD from the University of Pennsylvania and served a long-term teaching service at the London School of Economics. He wrote more than 20 books and more than 200 academic articles, from Marxist economics to global capitalism.
- His famous books include Marx Ka Badla and Bhagavad Gita Kisne Likhi?, in which he critically interpreted traditional ideas. Desai was deeply associated with Indian culture and public communication. The Government of India honored him with the Padma Bhushan in 2008 for his contribution to economics and public service.

Operation Mahadev

- On 28 July, the Indian Army killed three terrorists on the outskirts of Srinagar under 'Operation Mahadev'. This operation was carried out by the Para Commandos and people killed included Suleman alias Asif, who is believed to be the mastermind of the Pahalgam attack on April 22. The other two terrorists, Jibran and Hamza Afghani, are also wanted by the security forces.
- Jibran has been linked to the Sonamarg tunnel attack in 2024. After the encounter, the security forces seized a large quantity of weapons including an M4 carbine and two AK rifles.
- Additional forces have been deployed due to the possibility of presence of more terrorists in the area based on intelligence.
- The bodies of the killed terrorists have been handed over to the local police for legal action. This operation was part of the security forces' ongoing strategy against terrorism in the valley.

AUKUS Treaty: Australia-UK 50-year defense agreement

- On 27 July, Australian Deputy Prime Minister Richard Marles and UK Defense Secretary John Healy signed a 50-year defense partnership under the AUKUS defense alliance in the city of Geelong.
- This partnership will strengthen cooperation in the design, construction and operation of SSN-AUKUS submarines. However, the US is reviewing this trilateral alliance to ensure whether it

is in line with the America First policy. Meanwhile, this commitment of Australia and Britain reflects a shared strategy to counter China's aggressive policies in the Indo-Pacific region.

- The AUKUS partnership, formed in 2021, aims to equip Australia with advanced nuclear submarines. The Geelong Treaty is an important step in this direction, which can affect future strategic balance.

Divya Deshmukh becomes World Cup winner and fourth Indian woman grandmaster

- 19-year-old Divya Deshmukh has created history by winning the FIDE Women's World Cup. She became the first Indian woman to win this title and also the fourth Indian woman grandmaster.
- In the final match held in Batumi (Georgia), she defeated veteran Koneru Humpy by a score of 2.5-1.5. The first two classical games and the first rapid tiebreak were draws, but Divya registered a decisive win in the second rapid game.
- Divya, has now qualified for the 2026 Candidates Tournament, which will decide who will challenge women's world champion Ju Wenjun.

V.S. Achuthanandan passes away

- V.S. Achuthanandan, an iconic leader of the Indian communist movement, passed away at the age of 101. He served as the Chief Minister of Kerala (2006–2011) and played an effective role as the Leader of the Opposition from 2001–2006.
- His political life was mainly dedicated to protecting the rights of underprivileged classes, workers, and farmers. He took an active stand on issues of land reform, transparency, and anti-corruption. Within the CPM, he was known for his policy-oriented and ideological stance, which often brought him into contradictory positions in the party's internal politics.
- His administrative style was based on strict discipline and transparency. His mass popularity contributed significantly to the Left Democratic Front's electoral success in 2006.
- Achuthanandan's legacy shows that ideological commitment and public welfare-focused politics can strengthen democratic institutions.

Cricket's return to the Olympics

- Cricket will return to the Olympic stage after more than a century, with the sport set to feature in the Los Angeles 2028 Games in the fast-paced Twenty20 (T20) format. This can be seen as a result of sports diplomacy and the changing preferences of global audiences. The inclusion of the T20 format at Los Angeles 2028 is a result of cricket's growing popularity in the US and the ICC's global expansion efforts.
- Six teams will participate in both the men's and women's categories, and a total of 180 players will be included. The temporary Fairgrounds Stadium in the US has been chosen as the venue, which also signals the flexibility and extensibility of the Olympic Games.
- The inclusion of cricket for the first time since 1900 reflects inclusive diversity in a sports policy that has also reintroduced sports such as baseball, squash.
- The decision not only diversifies the sports programme, but is also part of a strategy to connect millions of viewers to the Olympics from South Asia and the Caribbean. The ICC's fair qualification system will ensure that competitive teams participate, thereby maintaining the quality of the game.

Operation Shiva

- In Jammu and Kashmir, the Army has launched Operation Shiva, a comprehensive security initiative to provide foolproof security to the 38-day-long Amarnath Yatra that commenced on July 3. This annual pilgrimage draws thousands of devotees to the sacred Amarnath Cave shrine in J&K, located at an altitude of 3,888 meters.
- The operation is based on a combination of multi-layered security management, technical surveillance and emergency services. With measures such as deployment of about 8,500 troops, drone and CCTV surveillance, and medical assistance, it seeks to make the yatra safe, structured and smooth. Anti-terrorism grids and corridor security plans are helpful in neutralizing potential security threats. Further there is provision of over 150 medical personnel, 2 advanced dressing stations and a 100-bed hospital.
- The operation is conducted in collaboration with the state and central governments, the army, paramilitary forces and the civil administration.
- Operation Shiva emerges as a model in the Indian strategy of shrine security, which presents a balanced inclusion of the ability to deal with terrorism and disasters along with respect for religious faith.

DRDO's UAV-Launched Missile V3

- The DRDO (Defence Research and Development Organisation) has successfully flight-tested the ULPGM-V3 (Unmanned Aerial Vehicle Launched Precision Guided Missile). This demonstrates the advancement in India's indigenous defence capabilities.
- The system is capable of day-night operations and is equipped with a dual channel seeker and bidirectional data link, providing it dynamic and real-time target updates. Three modular warhead options—anti-armour, anti-bunker and area effect—underline its tactical versatility.
- The project has seen collaboration between DRDO laboratories such as RCI, DRDL, TBRL as well as the private sector, MSMEs and startups, exemplifying public-private partnership in defence production. The UAV platform has been developed by NewSpace Research, indicating the success of India's startup-led defence innovation policy.
- The test was conducted exclusively in anti-armour configuration, indicating that the Indian Army is moving towards missile systems with higher mobility and accuracy in the future. This success will enhance India's self-reliance and strategic dominance.

Ajay Seth appointed IRDAI Chairman

- Former Finance Secretary Ajay Seth has been appointed as the Chairman of the Insurance Regulatory and Development Authority of India (IRDAI). His term will be for three years or till the age of 65.
- Ajay Seth has administrative experience, especially in finance and economic matters, which is likely to guide IRDAI in the areas of policy making, digital insurance ecosystem and investment regulation.
- The appointment fills the post that has been vacant since March 2025, restoring regulatory stability. IRDAI, established in 1999 following the recommendations of the Malhotra Committee, is the premier body for the development and regulation of India's insurance industry.
- Its autonomy and statutory status empower it to drive innovation and consumer protection in the insurance sector.
- Ajay Seth's role can be decisive in increasing insurance penetration, enabling digital platforms and encouraging inclusive insurance schemes. The appointment signals the beginning of a

new era of stability, strategic vision and transparency in insurance regulation.

Recognition of Palestine by France

- France has made an announced regarding formally recognising Palestine as a nation during the United Nations General Assembly in September 2025.
- France's stance comes against the backdrop of the ongoing conflict in Gaza, the humanitarian crisis, and the need for the release of hostages. Macron stressed the need to disarm Hamas, declare a ceasefire, and rebuild Gaza.
- Currently, more than 140 countries have recognised Palestine as an independent nation, making this decision an indication of the expansion of global consensus. Ramallah is the administrative capital of Palestine, while Jerusalem remains the capital claimed by both sides.
- The announcement is a reflection of France's active role in West Asia diplomacy and efforts to promote a two-nation solution.

Bold Kurukshetra 2025

- The 14th edition of the India-Singapore Joint Military Exercise was commenced recently in Jodhpur. This military exercise, to be held between India and Singapore, provides a platform for testing tactical coordination and mechanized warfare strategies.
- The joint exercise focuses on tabletop simulations and computer-based battle plans, reflecting the imperative of technological proficiency in the modern military scenario.
- The aim of the exercise is to promote operational coordination, battle-rehearsal and defence cooperation under the framework of the United Nations.
- Singapore's 42nd Armoured Regiment and India's Mechanized Infantry Regiment are participating in it, strengthening the tactical synergy between the two armies. The exercise signals the importance India attaches to multilateral partnerships in its approach to military diplomacy. Overall, the exercise is part of India's Indo-Pacific strategy and its broader strategy to preserve regional stability.

US declares 'The Resistance Front' a terrorist organisation

- The US has officially declared Lashkar-e-Taiba's affiliate 'The Resistance Front' (TRF) a terrorist organisation after the terror attack in Pahalgam, Kashmir.
- US Secretary of State Marco Rubio announced that TRF has been given the status of 'Foreign Terrorist Organization' (FTO) and 'Specially Designated Global Terrorist' (SDGT). The action came after the April 22 attack in which 26 innocent civilians were killed.
- TRF is a proxy group of Lashkar-e-Taiba and has claimed responsibility for several attacks on Indian security forces in the past few years. The move reflects America's commitment to national security and its fight against terrorism. The State Department has also reviewed Lashkar-e-Taiba's old FTO status. India has welcomed the move.
- Earlier on July 15, External Affairs Minister S. Jaishankar had strongly condemned the Pahalgam attack during the SCO meeting in China and urged for 'zero tolerance' towards terrorism. The United Nations Security Council has also strongly criticized the attack.

Yulia Sviridenko becomes the new Prime Minister of Ukraine

- The Ukrainian Parliament has appointed Yulia Sviridenko as the country's new Prime Minister.

The decision is part of a larger administrative reshuffle aimed at strengthening wartime leadership and increasing government efficiency.

- Sviridenko is a 39-year-old experienced technocrat and has been serving as the first deputy prime minister since 2021. She enjoys the confidence of President Volodymyr Zelensky and has been entrusted with increasing domestic arms production, stabilizing the economy and establishing a reliable military supply chain.
- Ukraine's economy is currently dependent on foreign aid and loans. Zelensky wants 50% of the weapons used on the battlefield to be made domestically—up from the current 40%. The president has also called for easing economic regulation and deepening international cooperation.
- Sviridenko previously brokered the Ukraine-US minerals deal with the Trump administration. She was approved by 262 votes in parliament. Outgoing Prime Minister Denis Shmyhal has been nominated as the Defense Minister.

India successfully test-fired Prithvi-II and Agni-I missiles

- India successfully test-fired nuclear-capable ballistic missiles Prithvi-II and Agni-I from the Integrated Test Range at Chandipur in Odisha. These tests conducted by the Strategic Forces Command demonstrated the robustness of India's nuclear deterrence strategy.
- The Prithvi-II missile can carry a conventional or nuclear payload of 500 kg to a distance of about 350 km. At the same time, Agni-I has a range of 700–900 km and is capable of carrying a payload of up to 1,000 kg.
- The Defense Ministry confirmed that both the missiles demonstrated operational readiness by meeting all technical parameters.
- These tests were conducted under India's 'Credible Minimum Deterrence' policy and make it clear that India is keeping its nuclear capability updated by testing it from time to time. This test is a sign of India's seriousness and preparedness in maintaining the regional security balance.

Successful test of Akash Prime air defence system

- India achieved an important defence milestone by successfully testing the Akash Prime air defence system in Ladakh. The system is equipped with an advanced "radio frequency seeker", which enables it to hit high-speed aerial targets with greater accuracy.
- During the test, it successfully shot down two high-speed targets. Akash Prime is an advanced version of the original Akash system and is specially designed for high-altitude areas (above 4,500 metres).
- The development of this system was done by DRDO, the air defence wing of the Indian Army, public sector undertakings like Bharat Dynamics Limited and Bharat Electronics Limited.
- This test came after the success of Operation "Sindoor", which saw excellent performance of Indian air defence systems. This achievement not only confirms India's indigenous capabilities but will also further strengthen missile defence preparedness in future.

Indore tops Swachh Survekshan 2024-25

- President Draupadi Murmu presented the Swachh Survekshan 2024-25 awards at a ceremony held at Vigyan Bhavan in New Delhi.
- Indore was declared the cleanest city in the country for the eighth consecutive year. Surat and

Navi Mumbai were ranked second and third respectively. All three were included in the 'Elite Super Swachh League'.

- Noida won the title of best city in the 3-10 lakh population category, while Prayagraj received the 'Best Ganga City' award for outstanding contribution in cleaning the river Ganga. Jabalpur, Gorakhpur and Visakhapatnam were felicitated for ensuring the safety of Safai Mitras.
- This year, participation of smaller cities in the survey was made easier and a "one city, one award" approach was adopted.
- Union Minister Manohar Lal launched the "Har Ek Swachh Ek" campaign, under which the top 78 cities will guide the weaker performing cities. Also, a dumpsite remediation program was announced, starting on 15 August 2025, which will last for one year.

Leila Aboulela wins PEN Pinter Prize 2024

- Sudanese-British writer Leila Aboulela has been awarded the prestigious PEN Pinter Prize for 2024. The award was given to her for her literature focusing on faith, migration and women's experiences.
- Aboulela grew up in Sudan and now lives in Aberdeen, Scotland. Her major works include *The Translator*, *Elsewhere*, *Home*, and the recent novel *River Spirit* (2023). Her works have been praised for portraying the dignity and complexities in the lives of Muslim women.
- She will be honored at an official ceremony at the British Library in London on October 10, where she will also announce the winner of the "Writer of Courage Award".
- Previous winners include luminaries such as Salman Rushdie, Margaret Atwood and Arundhati Roy. The prize is awarded annually to writers from Commonwealth or former Commonwealth countries. The PEN Pinter Prize award is given to writers who take a bold look at society and demonstrate deep intellectual commitment.

QS Rankings 2026

- Delhi has been declared the world's most affordable student city in the QS Global Best Student Cities 2026 rankings. The list, released by global higher education consultancy Quacquarelli Symonds (QS), ranked 150 cities across the world on various parameters.
- Seoul, Tokyo and London top the list. Four Indian cities—Delhi, Mumbai, Bengaluru and Chennai—have improved their positions. Mumbai has moved up to 98th position while Delhi is 104th, Bengaluru 108th and Chennai 128th.
- On the affordability criterion, Delhi ranks first and Mumbai and Bengaluru are in the top 15.
- In terms of employment opportunities, Delhi and Mumbai have entered the global top 50, while Bengaluru jumped 41 places to 59th position.
- According to the report, the number of institutions in India featured in the QS World University Rankings has increased by 390% in the last decade. This reflects the improvement in India's education system and employment opportunities.

Sikkim's Yakten becomes India's first digital nomad village

- On 14 July 2025, Yakten village in Pakyong district of Sikkim was declared India's first digital nomad village under the 'Nomad Sikkim' initiative. It was inaugurated by Pamina Lepcha (MLA and Advisor to the Social Welfare Department).
- The project aims to create a sustainable and community-driven destination for digital nomads from across the country and the world. It is a joint effort of the Pakyong District Administration

and the NGO Sarvwhitey.

- It aims to transform tourist destinations into year-round workplaces while promoting work-from-home culture. It will also provide a solution to the income instability of homestay operators in the off-season. Infrastructure such as dual internet lines, Wi-Fi, inverter and water facility under Jal Jeevan Mission have been developed in the village.
- Yakten, located 32 km from Gangtok, is being presented as a calm and modern workplace for global remote workers. This initiative is considered to be an innovative experiment towards connecting India's digital and tourism sectors.

Shubhanshu Shukla successfully completed Axiom-4 space mission

- Indian astronaut Group Captain Shubhanshu Shukla and the Axiom-4 mission team have successfully completed the 18-day space mission. They returned safely on July 15, 2025 in the Pacific Ocean near the California coast via SpaceX Dragon capsule.
- The Axiom-4 mission was launched on June 25 by a Falcon-9 rocket from Florida. Shubhanshu Shukla became the first Indian to reach the International Space Station (ISS), while he is the second Indian to go to space after Rakesh Sharma.
- At the ISS, he conducted seven scientific experiments related to India's space research priorities, which will give direction to future deep space missions.
- The mission was a joint venture between Axiom Space, NASA and ISRO, named "Akash Ganga". The mission has proved to be a milestone for India's human space missions and further strengthens India's role in global space cooperation.

114-year-old runner Fauja Singh dies

- Famous marathon runner Fauja Singh died in a road accident at the age of 114 in Beas village in Punjab. He was known by nicknames like "Turbaned Tornado" and "Sikh Superman".
- Fauja Singh was born on 1 April 1911 in Beas village. After the death of his son in 1994, he started running, which became a medium for him to overcome grief. His first major race was the London Marathon in 2000, when he was 89 years old.
- He participated in the London Marathon six times and many international marathons. He set many records in his age-group and became an icon of defying age.
- He has long been an icon of health, fitness and positive mindset. His achievements were an inspiration to the elders that age is just a number.

India's second longest cable-stayed bridge in Karnataka

- Union Minister Nitin Gadkari inaugurated the 2.44 km long Sigandur Bridge in Shivamogga district of Karnataka, which is now India's second longest cable-stayed bridge. It is located on the Sharavati backwater and connects the towns of Sagar and Marakutika.
- Built at a cost of Rs.470 crore, the bridge has made travel to the Chowdeshwari temple in Sigandur easier. The bridge is named after Goddess Chowdeshwari. The construction of the Linganamakki dam in the 1960s disrupted road access to the area, which the bridge now restores.
- The Minister has set a target of completing road projects worth Rs.5 lakh crore in Karnataka. The Belagavi-Hungund-Raichur corridor will reduce travel time from six hours to two and a half hours.

- Apart from this, the extension of the Hassan-Raichur highway will be completed by 2028. At the national level, the Zojila tunnel and the Surat-Chennai highway will be ready by 2026.
- These projects will strengthen India's infrastructure as well as accelerate regional development and tourism.

Haryana, Goa and Ladakh get new Governors and Lieutenant Governors

- President Draupadi Murmu has recently appointed new Governors and Lieutenant Governors for Haryana, Goa and Ladakh. Professor Ashim Kumar Ghosh, a distinguished academician and political thinker, has been appointed as the new Governor of Haryana.
- Shri Pushpati Ashok Gajapathi Raju has been appointed as the Governor of Goa. He is a former Union Civil Aviation Minister and a senior leader of the Telugu Desam Party.
- At the same time, senior BJP leader and former Deputy Chief Minister of Jammu and Kashmir Kavinder Gupta has been appointed as the new Lieutenant Governor of Ladakh. The President has accepted the resignation of outgoing Lieutenant Governor of Ladakh Brigadier (Dr.)
- BD Mishra (Retired). According to Article 155 of the Indian Constitution, the Governor is appointed by the President, while under Article 156, he remains in his post at the pleasure of the President.
- These new appointments will come into effect from the date the concerned officials take charge. This reshuffle is considered to be an important step towards diversifying administrative energy and leadership.

Direct tax collection increased by 274% in 10 years

- India has recorded an astonishing 274% increase in direct tax collections over the last decade. According to Finance Ministry, Gross direct tax collections are projected to grow from around Rs. 6.38 lakh crore in 2013-14 to over Rs. 23.9 lakh crore in 2024-25.
- Also, refunds issued to taxpayers have increased by 474%—from Rs.83,008 crore in 2014 to Rs.4.76 lakh crore in 2025. The average time taken to issue refunds has also come down from 93 days to just 17 days.
- This change is largely attributed to the digital transformation in tax administration, which includes online filing, faceless assessments, and data-driven decision-making systems. The taxpayer base has also increased by 133%, expanding the tax network.
- The refund ratio relative to gross direct tax collection has also increased to 17.6%. This change reflects the government's commitment to transparency, efficiency and citizen convenience. It reflects India's achievements towards fiscal consolidation through tax reforms and digitalization.

Sonali Mishra becomes the first woman Director General of RPF

- Senior IPS officer Sonali Mishra has been appointed as the first woman Director General of the Railway Protection Force (RPF). Her appointment has been approved by the Appointments Committee of the Cabinet.
- She is a 1993 batch Madhya Pradesh cadre IPS officer and is currently working as Additional Director General (Selection) in Madhya Pradesh Police. She will replace Director General Manoj Yadav, who is retiring on July 31, and will hold this post till October 31, 2026.
- Sonali Mishra created history in July 2021 by becoming the first woman commander to lead a BSF contingent on the Indo-Pak border. She has been awarded the President's Police Medal

and Police Medal for Distinguished Service and Meritorious Service.

- The RPF was established in 1957 by an Act of Parliament and was declared an 'Armed Force of the Union' in 1985. The force works to ensure security of Indian Railways property and passengers. Her appointment is a historic step towards increasing participation of women in leadership and gender balance in security forces.

'Digi-Lakshmi' scheme launched for women in Andhra Pradesh

- The Andhra Pradesh government has launched an ambitious scheme called 'Digi-Lakshmi' to digitally empower urban women.
- Under the scheme, 9,034 Common Service Centres (CSCs) will be set up in the urban local bodies of the state, which will be operated by women from eligible Self Help Groups (SHGs).
- The scheme aims to transform women into small and medium enterprises (SMEs), in line with the government's 'One Family, One Entrepreneur' vision.
- Each service centre is designed as an Atom kiosk that will provide around 250 citizen services. Eligible women will be married, aged 21-40, with a graduate degree and technical qualification and be permanent residents of their area.
- The Mission for Elimination of Poverty in Municipal Areas (MEPMA) has been given the responsibility of implementing the scheme, which will also provide training and loans up to Rs.2-2.5 lakh to the selected women. The initiative is a significant step towards promoting digital inclusion as well as strengthening women entrepreneurship.

Microsoft launches BioEmu-1 AI system

- Microsoft has launched a new artificial intelligence system "Biomolecular Emulator-1" or "BioEmu-1" that aims to accelerate drug research and better understand protein structures. This deep learning-based model is capable of generating thousands of protein structures per hour on a GPU.
- Proteins play a vital role in the body's biological processes—such as muscle development and immunity—but predicting their actual 3D shape from amino acids has been a challenge for scientists.
- BioEmu-1 overcomes this obstacle by identifying even subtle structural changes, including 'cryptic binding pockets'—these are useful as effective drug targets. This technology could revolutionize fields such as drug design, disease research and synthetic biology.

R. Harikrishnan becomes India's 87th Grandmaster

- 24-year-old A. R. Harikrishnan from Chennai has achieved the distinction of becoming India's 87th Grandmaster. He achieved his third and final Grandmaster norm at the La Plagne International Chess Festival in France.
- His first norm was achieved in July 2023 at the Biel International in Switzerland and the second in June 2025 at the Andujar Open in Spain. The title of Grandmaster is awarded by the World Chess Federation (FIDE), for which a player has to achieve three GM norms and a rating of over 2500. The GM norm is proof of meeting the criteria of performance in high-level international tournaments. Harikrishnan's achievement reflects the ever-growing influence of India's young chess talent.
- India has emerged as a chess superpower in recent years, with players like Praggnanandhaa and D. Gukesh making the country proud on the international stage. Harikrishnan's achievement

is not just a personal success but also strengthens the chess culture of the country.

Colombia and Uzbekistan join New Development Bank

- Colombia and Uzbekistan have now officially become members of the New Development Bank (NDB), taking the total number of members of the bank to 11.
- Established in 2015 by the BRICS countries - Brazil, Russia, India, China and South Africa - the bank was created to finance development projects in emerging economies. It is headquartered in Shanghai, China. Currently, it also includes new members including Bangladesh, UAE, Egypt, Algeria.
- The bank focuses on infrastructure, sustainability, clean energy, transport, water, sanitation and digital projects and has approved more than 120 projects so far.
- At the 10th Board of Directors meeting, NDB President Dilma Rousseff reiterated the bank's commitment to the Global South and said that science, technology and innovation will help member countries adapt to the Fourth Industrial Revolution.
- The membership of Colombia and Uzbekistan further strengthens the Bank's global reach and collaboration among developing countries.

Trinidad and Tobago becomes first Caribbean country to adopt BHIM-UPI

- Trinidad and Tobago have become the first Caribbean country to connect to India's Unified Payments Interface (UPI) network by adopting the BHIM-UPI system. It is the eighth country to adopt India's UPI system, others include France, UAE, Bhutan, Nepal, Mauritius, Sri Lanka and Singapore.
- This landmark digital partnership was announced during the visit of Indian Prime Minister Narendra Modi on July 3-4. The agreement will boost digital payment mechanisms in Trinidad and Tobago.
- The two countries also discussed implementing other digital initiatives of India like DigiLocker and Government e-Marketplace (GeM). The partnership is considered an important step towards empowering the digital financial infrastructure of Trinidad and Tobago.
- This collaboration symbolizes the globalization of India's "India Stack" technologies and is another strong step towards the international dissemination of digital public goods.

Bulgaria to join Eurozone from January 2026

- Bulgaria will become the 21st member of the Eurozone from 1 January 2026. The EU finance ministers on 8 July 2025 formally approved Bulgaria's plan to adopt the Euro. With this, Bulgaria will replace its national currency 'Lev' with 'Euro'.
- This change is taking place 19 years after joining the EU. The exchange rate has been fixed at 1 Euro = 1.95583 Lev. Bulgaria's Prime Minister Rosen Zhelyazkov thanked all the parties involved in making this historic decision possible and promised a smooth and effective transition for the citizens. Senior EU official Valdis Dombrovskis said that this step will take Bulgaria towards economic strength and prosperity.
- This decision signals Bulgaria's deeper integration into the European economic structure and is seen as a major step towards promoting the country's monetary stability, investment attractiveness and financial uniformity.

Jennifer Simons becomes the first female president of Suriname

- Dr. Jennifer Simons has been elected the first female president of Suriname, which is a turning point in the political history of the country. Apart from being a medical doctor, she has also been the Speaker of the National Assembly in the past.
- Her election was made possible through coalition negotiations after a complex and tied parliamentary election. In the elections held on May 25, Simons' National Democratic Party (NDP) won 18 seats, while the then President Chan Santokhi's Progressive Reform Party (VHP) got 17 seats.
- The remaining 16 seats were won by other smaller parties. The President of Suriname is not directly elected by the people, but by the National Assembly, in which a two-thirds majority is necessary for victory. Simons received support after about six weeks of intense negotiations and coalition efforts.
- Suriname is currently in a situation of a potential oil boom, which can change the economic picture of the country. At such a time, Simons' leadership is considered very important in terms of economic reforms and stability. This election is also an inspiring sign for women's political participation and leadership potential. Her appointment is a historic achievement for Suriname towards gender equality.

PM Modi conferred with 'City Key' of Buenos Aires

- Prime Minister Narendra Modi was conferred with the 'City Key' by the Argentine capital Buenos Aires, one of the city's highest civilian honours. The honour was presented by the head of the city government Jorge Macri and symbolises recognition of PM Modi's contribution to strengthening India-Argentina relations.
- The visit was the first independent bilateral visit to Argentina by an Indian Prime Minister in 57 years. During his visit, PM Modi paid tribute to Mahatma Gandhi in Buenos Aires and paid respects to the statue of Rabindranath Tagore.
- He mentioned that Tagore had visited Argentina in 1924, highlighting the historical depth of cultural ties between the two countries. Argentina has vast reserves of natural resources such as shale gas, crude oil and lithium, which India considers vital for its clean energy and industrial strategy.
- India sees Argentina as a strategic partner in these sectors. The visit is a decisive step towards strengthening India's economic and diplomatic engagement with the global south.

First Khelo India Water Sports Festival to be held at Dal Lake

- India's first Khelo India Water Sports Festival will be held at Dal Lake in Srinagar from 21 to 23 August 2025. This was announced by Union Minister Dr. Mansukh Mandaviya. The event is part of the government's expanded Khelo India programme and is the second special event after the first Beach Games held in Diu earlier this year.
- It includes five major water sports — kayaking and canoeing, rowing, water skiing, shikara racing and dragon boat racing. Over 400 athletes from 36 states and union territories of India will participate in the festival. The participants will be selected on the basis of national performance or qualifying standards set by the respective national sports federations. Appreciating India's growing competitiveness in the Asian Water Games, Dr Mandaviya termed the festival as a milestone in the development of Indian water sports.
- The event will be held as the fifth major Khelo India event this year after the Winter Games held in Ladakh and Jammu & Kashmir, Para Games in Delhi, Youth Games in Bihar and Delhi

and Beach Games in Diu. It symbolizes the expansion of water sports culture in India.

India's first Equine Disease-Free Compartment in Meerut

- India has established its first Equine Disease-Free Compartment (EDFC) at the Remount Veterinary Corps (RVC) Centre and College in Meerut, Uttar Pradesh, as per international standards. It was officially recognized by the World Organization for Animal Health (WOAH) on 3 July 2025.
- The facility will enable global movement of sport horses, breeding and commercial equines in India. The EDFC strengthens India's biosecurity, disease control and surveillance capabilities.
- It has been declared free from five major equine diseases — equine infectious anemia, equine influenza, equine piroplasmosis, glanders and surra. India is also free from African Horse Sickness since 2014.
- The facility runs under strict SOPs, which include cleanliness, quarantine and monitoring mechanisms. This achievement is a result of collaboration between the Department of Animal Husbandry, Equestrian Federation of India, RVC Directorate and the State Government. The centre is a milestone towards establishing India's equestrian sports on the global platform and empowering export opportunities.

Establishment of National Cooperative University at Anand

- On 5 July 2025, the foundation stone of India's first national cooperative university "Tribhuvan Cooperative University (TSU)" was laid in Anand, Gujarat. This university is a historic initiative towards empowering cooperative education, innovation and employment in the country.
- It will provide multi-disciplinary courses based on the National Education Policy 2020 and aims to connect more than 200 cooperative institutions in the next four years.
- TSU will train 20 lakh people in the next five years to meet the skill requirements of about 40 lakh cooperative employees and 80 lakh board members in the country. PhD programs in cooperative studies and a research and development council will be established.
- The university aims to promote innovation and technological development in the cooperative sector. The institute will encourage national and international partnerships to connect India's cooperative system with global best practices.
- This will integrate and standardize training in PACS, dairy, fisheries and other cooperative sectors. TSU will strive to take India's cooperative movement to new heights.

Ghana's highest civilian honor to Prime Minister Modi

- On July 2, 2025, Prime Minister Narendra Modi was awarded the country's highest civilian honor "Officer of the Order of the Star" by Ghana's President John Dramani Mahama. This honor recognizes India's global leadership and the Prime Minister's role in strengthening international cooperation.
- PM Modi dedicated this honor to the aspirations of 1.4 billion Indians and the youth of India. He expressed gratitude to the Government of Ghana and the people there and said that this honor gives new energy and responsibility to the relations between the two countries.
- During this, India reiterated its commitment to increase cooperation in the fields of education, health, defense, agriculture and digital payments. The establishment of a skill development center and support to the 'Feed Ghana' program were also announced.
- Apart from this, ITEC and ICCR scholarships were doubled and affordable medicines and

vaccine cooperation through Jan Aushadhi Centers were discussed. This visit was the first visit of an Indian Prime Minister to Ghana in three decades, reflecting India's growing partnership with Africa and the Global South

Tegbir Singh, the youngest to conquer Mount Elbrus

- Six-year-old Tegbir Singh of Punjab has become the youngest person in the world to climb Mount Elbrus (18,510 feet). He completed this climb with his father Sukhinderdeep Singh between June 20 and June 28, 2025.
- His achievement was certified by the Kabardino-Balkarian Mountaineering Federation of Russia. Tegbir made this record at the age of 6 years, 9 months, 4 days, while the previous record was of 7 years. Earlier in August 2024, he conquered Mount Kilimanjaro and received the title of Asia's youngest mountaineer and got his name registered in the Asia and India Book of Records. In April 2024, he trekked to Everest Base Camp in Nepal.
- These achievements of Tegbir not only symbolize personal success, but also encourage the spirit of courage, patience and adventure in the young generation of India. This record increased the pride of India at the international level and set a new inspiration in child mountaineering.

Smriti Mandhana's historic cricket record

- Indian women's cricket star batsman Smriti Mandhana created history by becoming the first Indian woman player to score a century in all three international formats (Test, ODI and T20).
- She achieved this feat by playing an explosive innings of 112 runs in the first T20I played against England in Nottingham.
- The strike rate of this innings played with 15 fours and 3 sixes in just 62 balls was 180.65. Mandhana has joined the five women players globally who have scored centuries in all three formats. With this, she took the team to a strong position by sharing 77 runs with Shafali Verma and 94 runs with Harleen Deol.
- Mandhana and Shafali have now become the highest run-scoring pair in women's T20Is, breaking the record of the Healy-Mooney pair with 2724 runs. Mandhana's consistency and technical ability make her one of the leading players in the world.

‘C-Flood’: New Flood Forecasting System

- Union Jal Shakti Minister C.R. Patil launched the Integrated Flood Forecasting System named ‘C-Flood’ in New Delhi. This web-based platform is capable of providing flood forecast up to village level two days in advance.
- It has been jointly developed by C-DAC Pune and Central Water Commission under the Ministry of Jal Shakti. Currently, the system covers Mahanadi, Godavari and Tapi river basins, and there are plans to add other basins in future.
- C-Flood is based on advanced two-dimensional hydrodynamic modelling techniques and high performance computing (HPC) infrastructure. It provides accurate flood maps and water level predictions, which can alert the administration and the general public in time.
- The data for Godavari and Tapi basins is prepared by the National Remote Sensing Centre. The Ministry has directed the Central Water Commission to work with C-DAC, NRSC and other agencies for effective implementation and improvement of the system.
- This initiative is a significant advancement in the field of disaster management in India.

MCQs Based on Current Affairs

1. With reference to the Santhal Hul rebellion of 1855, consider the following statements:

1. The rebellion was primarily against the British East India Company and local exploiters known as diku.
2. It was led by Sidhu and Kanhu Murmu, along with their sisters Phulo and Jhano.
3. The Santhals used advanced firearms provided by other anti-colonial groups during the uprising.
4. The rebellion led to the enactment of the Santhal Parganas Tenancy Act, 1876.

Which of the statements given above is/are correct?

- A: 1, 2 and 4 only
B: 1 and 3 only
C: 2 and 3 only
D: 1, 2, 3 and 4

2. In the context of Balance of Payments (BoP), which of the following are considered private transfers?

1. Remittances from overseas workers
2. Gifts or donations from individuals abroad
3. Loans extended by foreign governments
4. Funds transferred during migration by individuals

Select the correct answer using the code below:

- A: 1 and 2 only
B: 1, 2 and 4 only
C: 1, 3 and 4 only
D: 2, 3 and 4 only

3. Which of the following statements about the Mekong-Ganga Cooperation (MGC) is/are correct?

1. It includes all the ASEAN member countries.
2. It focuses on areas like tourism, culture, education, and transportation.
3. It was launched in Vientiane, Laos in 2000.

Options:

- A: 1 and 2 only

B: 2 and 3 only

C: Only 1 and 3

D: 1, 2, and 3

4. Which of the following statements is/are correct about the Defence Acquisition Council (DAC)?

1. It is the highest decision-making body in the Ministry of Defence on procurement matters.
2. It was formed after the Kargil War based on recommendations of the Group of Ministers in 2001.
3. The Prime Minister is the ex-officio chairman of the DAC.

Options:

- A: 1 and 2 only
B: 2 and 3 only
C: Only 1 and 3
D: 1, 2, and 3

5. Which of the following is the correct vision target for India's chemical sector by 2040, as per NITI Aayog's report?

- A: Achieve \$500 billion in chemical output
B: Capture 6% of the global chemical value chains
C: Generate 7 lakh jobs
D: Reach \$1 trillion chemical industry output

6. Ham Radio has remained a relevant and effective tool for communication during crises even in the modern digital age.

Reason (R):

Ham Radio requires no internet connectivity or mobile network to operate and can function independently using radio waves.

Options:

- A: Both A and R are true, and R is the correct explanation of A
B: Both A and R are true, but R is not the correct

explanation of A

- C: A is true, but R is false
 D: A is false, but R is true

7. Consider the following statements about the Nipah Virus (NiV):

1. It is a DNA virus belonging to the Flaviviridae family.
2. It is a zoonotic virus known to be transmitted from fruit bats to humans.
3. India has reported recurrent outbreaks of NiV in both West Bengal and Kerala.

Which of the statements given above is/are correct?

- A: 1 and 2 only
 B: 2 and 3 only
 C: Only 1 and 3
 D: 1, 2, and 3

8. With reference to The 97th Constitutional Amendment, consider the following statements:

1. The 97th Constitutional Amendment gave constitutional status to cooperative societies.
2. It inserted Article 43B under the Directive Principles of State Policy.
3. It added a new Part IXA to the Constitution specifically for cooperatives.

Which of the statements given above is/are correct?

- A: 1 and 2 only
 B: 2 and 3 only
 C: Only 1 and 3
 D: 1, 2, and 3

9. Which of the following was not one of the four key proposals made by India at the BRICS Summit 2025?

- A: Responsible use of Artificial Intelligence
 B: BRICS Space Alliance for joint satellite launches
 C: Strengthening supply chain resilience
 D: Collaborative science and research repository

10. Consider the following regarding the composition of the Governing Council of NITI Aayog:

1. All Chief Ministers of States
2. Chief Ministers of Union Territories
3. Lt. Governors of UTs without legislature
4. Members of Rajya Sabha

Which of the above are part of the Governing Council?

- A: 1 and 2 only
 B: 1, 2 and 3 only
 C: 1, 3 and 4 only
 D: 1, 2, 3 and 4

11. Which of the following statements regarding PARAKH is/are correct?

1. It is a national-level assessment regulator under the Ministry of Education.
2. It functions as an autonomous body under the University Grants Commission (UGC).
3. It aims to set norms and guidelines for student assessments across all school boards in India.
4. It will conduct periodic assessments like NAS and State Achievement Surveys.

Select the correct answer using the code below:

- A: 1 and 2 only
 B: 1, 3 and 4 only
 C: 2 and 3 only
 D: 1, 2, 3 and 4

12. Which of the following statements is/are correct regarding the North Eastern Region District SDG Index 2023–24?

1. The index is jointly developed by NITI Aayog, the Ministry of Development of North Eastern Region (DoNER), and UNDP.
2. All districts in Mizoram and Tripura have achieved "Achiever" status.
3. Hnahthial district in Mizoram ranked as the highest scorer in the region.

4. The index classifies districts into four categories: Achiever, Front Runner, Performer, and Aspirant.

Select the correct answer using the code below:

- A: 1, 3 and 4 only
 B: 1 and 2 only
 C: 2, 3 and 4 only
 D: All of the above

13. Assertion (A): Melting glaciers can lead to an increase in volcanic eruptions.

Reason (R):

The reduction in ice mass over volcanoes decreases pressure on underground magma chambers, making it easier for magma to reach the surface.

- A: Both A and R are true, and R is the correct explanation of A.
 B: Both A and R are true, but R is not the correct explanation of A.
 C: A is true, but R is false.
 D: A is false, but R is true.

14. Consider the following statements about dark web:

1. The dark web can be accessed through regular search engines like Google.
2. It provides a secure platform for whistleblowers and journalists in repressive regimes.
3. All activities on the dark web are illegal.

Which of the above statements is/are correct?

- A: Only 2
 B: 1 and 3 only
 C: 2 and 3 only
 D: 1, 2, and 3

15. Which of the following correctly describes the route of the Kaladan Multimodal Project?

- A: Kolkata → Sittwe → Paletwa → Zorinpui (Mizoram)
 B: Kolkata → Yangon → Mandalay → Aizawl

- C: Kolkata → Chattogram → Agartala
 D: Chennai → Sittwe → Kohima

16. Consider the following statements regarding the Financial Action Task Force (FATF):

1. It is a treaty-based United Nations agency.
2. It sets international standards to combat money laundering and terrorist financing.
3. India is a member of FATF.

Which of the statements given above is/are correct?

- A: 1 and 2 only
 B: 2 and 3 only
 C: Only 1 and 3
 D: 1, 2, and 3

17. Which of the following statements regarding INS Nistar is/are correct?

1. It is India's first indigenously designed and constructed Diving Support Vessel (DSV).
2. It is capable of conducting Deep Sea Saturation Diving operations up to 1000 meters.
3. It was delivered by Hindustan Shipyard Limited.

Which of the above is/are correct?

- A: 1 and 2 only
 B: 1 and 3 only
 C: 2 and 3 only
 D: 1, 2, and 3

18. Consider the following statements:

1. Recently, Starlink has received a five-year licence from IN-SPACe to provide satellite-based internet services in India.
2. The licence allows Starlink to use the Starlink Gen1 constellation comprising satellites in geostationary orbit.

Which of the above statements is/are correct?

- A: Only 1
 B: Only 2
 C: Both

D: None

19. What is the main function of the Indian National Space Promotion and Authorisation Centre (IN-SPACe)?

- A: To manufacture launch vehicles for ISRO
- B: To regulate telecom services in India
- C: To promote and authorise private sector participation in space activities
- D: To manage foreign satellite launches for Indian private entities

20. With reference to the PM E-DRIVE Scheme, consider the following statements:

1. It aims to support both private and commercial electric vehicles, including two-wheelers, buses, and ambulances.
2. Incentives are capped at 15% of the vehicle's ex-factory price or a fixed per-vehicle limit, whichever is higher.
3. Only electric vehicles priced below a government-notified threshold are eligible for incentives.

Which of the above statements is/are correct?

- A: 1 and 2 only
- B: 1 and 3 only
- C: 2 and 3 only
- D: All of the above

21. With reference to the Astra missile, recently in news, consider the following statements:

1. It is India's first indigenously developed Beyond Visual Range Air-to-Air Missile (BVRAAM).
2. It can also strike ground-based targets beyond the line of sight.
3. The missile is equipped with an indigenous Radio Frequency seeker.

Which of the statements given above is/are correct?

- A: 1 and 2 only
- B: Only 1 and 3

C: 2 and 3 only

D: 1, 2, and 3

22. Which of the following statements about Rare Earth Elements (REEs) is/are correct?

1. They include 15 lanthanides along with scandium and yttrium.
2. Despite their name, they are not truly rare in Earth's crust.
3. They are usually found in low concentrations, making extraction economically viable.

Select the correct answer using the code below:

- A: 1 and 2 only
- B: 2 and 3 only
- C: Only 1 and 3
- D: 1, 2, and 3

23. Which of the following operations was conducted by India to evacuate its nationals from Haiti amid civil unrest in 2024?

- A: Operation Sadbhav
- B: Operation Samudra Setu
- C: Operation Indravati
- D: Operation Maitri

24. With reference to the Indian one-horned rhinoceros, consider the following statements:

1. It is the largest rhino species in the world.
2. It is currently classified as Endangered on the IUCN Red List.
3. It is protected under Schedule I of the Wildlife Protection Act, 1972.
4. It is found only in Assam and West Bengal in India.

Which of the statements given above are correct?

- A: 1, 2 and 3 only
- B: 1 and 3 only
- C: 1, 3 and 4 only
- D: 1, 2, 3 and 4

25. The Gyan Bharatam Mission, announced in the Union Budget 2025–26, primarily aims to:

- A: Promote Sanskrit as a national language.
- B: Preserve and digitize India's manuscript heritage using modern technologies.
- C: Establish new libraries in rural India.
- D: Translate Indian classical texts into all UN official languages.

26. With reference to the Revised SO₂ Emission Norms Framework for Thermal Power Plants in India (2024), consider the following statements:

1. Thermal power plants located within 10 km of Delhi-NCR or cities with a population of over 1 million are classified under Category A.
2. Category C thermal power plants are exempt from SO₂ norms but must comply with stack height regulations.
3. All thermal power plants retiring before December 2025 are exempt from installing flue gas desulphurization (FGD) systems.

Which of the above statements is/are correct?

- A: 1 and 2 only
- B: 2 and 3 only
- C: 1 and 3 only
- D: 1, 2 and 3

27. Consider the following statements regarding PM Dhan-Dhaanya Krishi Yojana:

1. The scheme has an annual outlay of ₹24,000 crore for a period of six years starting from 2025-26.
2. The scheme will be implemented exclusively by the Central Government without involving State Governments.
3. It aims to help around 1.7 crore farmers only 100 districts in India.

Which of the statements given above is/are correct?

- A: 1 and 2 only
- B: 1 and 3 only

C: 2 and 3 only

D: 1, 2 and 3

28. Which of the pairs given above are correctly matched?

Gravitational Wave Observatory	Country
LIGO	USA
Virgo	France
KAGRA	Japan
LIGO-India	India (proposed)

A: 1 and 3 only

B: 1, 3 and 4 only

C: 1, 2, 3 and 4

D: 1, 2 and 4 only

29. Consider the following statements regarding genome sequencing:

1. It determines the sequence of proteins in the body.
2. It reads the order of nucleotide bases (A, T, C, G) in an organism's DNA.
3. It is useful in drug development and disease mechanism studies.

Which of the statements given above is/are correct?

A: 2 only

B: 2 and 3 only

C: 1 and 3 only

D: 1, 2 and 3

30. With reference to Mitochondrial Donation Technology, consider the following statements:

1. It involves replacing the nuclear DNA of the mother with that of a donor.
2. It can prevent the transmission of mitochondrial diseases from mother to child.
3. The baby born through this technique has three genetic contributors.

Which of the statements given above is/are correct?

A: 1 and 2 only

B: 2 and 3 only

C: 1 and 3 only

D: 1, 2 and 3

31. Consider the following statements about INS Tamal:

1. INS Tamal is the first vessel of the Tushil-class frigates.
2. It is equipped with BrahMos supersonic cruise missiles.
3. Around 26% of its components are indigenously sourced.

Which of the statements given above is/are correct?

A: 1 and 2 only

B: 2 and 3 only

C: 1 and 3 only

D: 1, 2 and 3

32. Consider the following statements about the Javelin Anti-Tank Guided Missile (ATGM):

1. It is a third-generation fire-and-forget missile using infrared imaging for guidance.
2. It has a top-attack capability designed to target the weaker armor on tanks' roofs.
3. It was jointly developed by India and the United States.

Which of the statements given above is/are correct?

A: 1 and 2 only

B: 2 and 3 only

C: 1 and 3 only

D: All of the above

33. Consider the following benefits of INS Nistar to India's maritime strategy:

1. Enhances underwater operational preparedness
2. Reinforces India's role in humanitarian assistance and disaster relief (HADR)
3. Reduces India's reliance on foreign submarine rescue platforms
4. Serves as India's primary ballistic missile defense

platform

Which of the above statements are correct?

A: 1, 2, and 3 only

B: 2 and 4 only

C: 1 and 4 only

D: 1, 3, and 4 only

34. Consider the following statements regarding the Indian Institute of Creative Technologies (IICT):

1. It under the Ministry of Skill Development and Entrepreneurship.
2. Its primary focus is on training in traditional fine arts and sculpture.
3. The first campus of IICT was inaugurated at the premises of the National Film Development Corporation (NFDC) in Mumbai.

Which of the statements given above is/are correct?

A: 1 and 2 only

B: 3 only

C: 1 and 3 only

D: 2 and 3 only

35. Which of the following pairs is correctly matched?

1. Rickets – Vitamin D deficiency
2. Xerophthalmia – Vitamin A deficiency
3. Scurvy – Vitamin K deficiency
4. Beriberi – Vitamin B1 deficiency

Select the correct answer using the code below:

A: 1 and 2 only

B: 1, 2 and 4 only

C: 1, 3 and 4 only

D: All of the above

36. Under the Fertiliser (Control) Order, 1985, biostimulants are defined as:

- A: Plant growth regulators with insecticidal properties
- B: Substances or microorganisms that enhance plant

physiological processes and stress tolerance

- C: Synthetic chemicals that kill pests and promote growth
- D: Compounds classified as pesticides under the Insecticides Act, 1968

37. With reference to the Henley Passport Index, consider the following statements:

1. It ranks passports based on the number of destinations accessible without a prior visa.
2. The index is published by the International Air Transport Association (IATA).
3. India's rank in 2025 improved by 8 positions compared to 2024.
4. The Henley Passport Index includes electronic travel authorisation (e-visa) in its ranking criteria.

Which of the above statements are correct?

- A: 1, 2, and 3
- B: 1, 3, and 4
- C: 1 and 3 only
- D: 2 and 4 only

38. Consider the following pairs:

Country	Henley Passport Index 2025 Rank
Singapore	1st
Japan	2nd
France	3rd
UK	2nd
UAE	8th

Which of the above pairs are correctly matched?

- A: 1, 2, 3, and 5 only
- B: 1, 3, and 5 only
- C: 1, 2, 3, and 4 only
- D: All of the above

39. With reference to the Pollution Control Vessel (PCV) 'Samudra Prachet', consider the following statements:

1. It is the first indigenously built pollution control vessel by Goa Shipyard Ltd for the Indian Navy.
2. The vessel is designed to operate within India's Exclusive Economic Zone (EEZ) for marine pollution control.
3. It features equipment capable of recovering oil of various viscosities and separating contaminated water.
4. It was built with more than 70% indigenous content.

Which of the statements given above are correct?

- A: 1 and 2 only
- B: 2, 3, and 4 only
- C: 1, 3, and 4 only
- D: 2 and 4 only

40. With reference to Rajendra Chola I, consider the following statements:

1. He was the founder of the Chola Empire.
2. He earned the title Gangaikonda Cholan after a successful campaign in northern India.
3. He established Gangaikonda Cholapuram as his new capital.
4. He led a maritime expedition that subdued the Srivijaya Empire in Southeast Asia.

Which of the statements given above are correct?

- A: 1 and 2 only
- B: 2, 3, and 4 only
- C: 1, 2, and 3 only
- D: 2 and 4 only

41. Which of the following are part of the UNESCO World Heritage Site "Great Living Chola Temples"?

1. Brihadeeswara Temple
2. Gangaikonda Cholapuram Temple
3. Kailasanatha Temple, Kanchipuram
4. Airavatesvara Temple

Select the correct answer using the code below:

- A: 1, 2, and 4 only

- B: 1 and 3 only
 C: 2, 3, and 4 only
 D: 1, 2, 3, and 4

42. Consider the following cultural features:

1. Use of surnames from the mother's lineage
2. Celebration of the Nongkrem Dance Festival
3. Practice of polyandry
4. Construction of living root bridges

Which of the above are associated with the Khasi community?

- A: 1, 2, and 4 only
 B: 1 and 3 only
 C: 2, 3, and 4 only
 D: 1, 2, 3, and 4

43. Consider the following statements regarding trade between India and Saudi Arabia:

1. In FY 2022–23, the bilateral trade between India and Saudi Arabia crossed \$50 billion.
2. India exports more to Saudi Arabia than it imports from it.
3. Saudi Arabia is among the top five trading partners of India.

Which of the above statements is/are correct?

- A: 1 and 2 only
 B: 2 and 3 only
 C: 1 and 3 only
 D: 1, 2 and 3

44. With reference to the National Institute of Rural Development and Panchayati Raj (NIRD&PR), consider the following statements:

1. It is an autonomous organization under the Ministry of Panchayati Raj.
2. It was originally established as the National Institute of Community Development.
3. It provides training and consultancy services in rural development and Panchayati Raj.

Which of the statements given above is/are correct?

- A: 1 and 2 only
 B: 2 and 3 only
 C: 1 and 3 only
 D: 1, 2 and 3

45. Consider the following statements regarding Article 143 of the Indian Constitution:

1. Article 143 empowers the President to refer a matter of law or fact to the Supreme Court for its advisory opinion.
2. The advisory opinion given by the Supreme Court under Article 143 is binding on the President.

Which of the statements given above is/are correct?

- A: 1 only
 B: 2 only
 C: Both 1 and 2
 D: Neither 1 nor 2

46. Which of the following conditions must be fulfilled to initiate the impeachment process of a High Court judge in India?

1. The motion must be signed by at least 100 Lok Sabha MPs or 50 Rajya Sabha MPs.
2. The President must approve the motion before it is introduced.
3. The motion is submitted to the presiding officer of the concerned House.
4. A three-member inquiry committee is formed after the motion is admitted.

Select the correct answer using the code below:

- A: 1, 2 and 4 only
 B: 1, 3 and 4 only
 C: 2, 3 and 4 only
 D: 1 and 4 only

47. The National Essential Diagnostics List (NEDL) includes tests recommended for:

- A: Only tertiary-level hospitals

- B: Private laboratories only
 C: All levels of healthcare, from village-level to district hospitals
 D: Urban multispecialty clinics only

48. Consider the following statements about the Indian Council of Medical Research (ICMR):

- ICMR was established in 1911.
- It is one of the oldest medical research organizations in the world.
- It operates as an autonomous body under the World Health Organization (WHO).

Which of the above statements is/are correct?

- A: 1 and 2 only
 B: 2 and 3 only
 C: 1 and 3 only
 D: All of the above

49. With reference to India-Maldives relations, consider the following statements:

- India and Maldives share both land and maritime borders.
- India was one of the first countries to recognize the

Maldives after its independence in 1965.

- The Greater Malé Connectivity Project is India's largest infrastructure project abroad.

Which of the statements given above is/are correct?

- A: 1 and 2 only
 B: 2 only
 C: 2 and 3 only
 D: 1, 2 and 3

50. Consider the following statements regarding zoonotic diseases:

- Zoonotic diseases can only transmit from animals to humans.
- Around 75% of emerging infectious diseases in humans have animal origins.
- Rabies is a zoonotic disease.

Which of the statements given above is/are correct?

- A: 1 and 2 only
 B: 2 and 3 only
 C: 1 and 3 only
 D: 1, 2 and 3

ANSWER

1	A
2	B
3	B
4	A
5	D
6	A
7	B
8	A
9	B
10	B

11	B
12	A
13	A
14	A
15	A
16	B
17	B
18	A
19	C
20	B

21	B
22	A
23	C
24	B
25	B
26	A
27	B
28	B
29	B
30	B

31	B
32	A
33	A
34	D
35	B
36	B
37	B
38	A
39	B
40	B

41	A
42	A
43	C
44	B
45	B
46	B
47	C
48	A
49	C
50	B



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